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POLYCHAETOUS ANNELIDS
PART II. CHRYSOPETALIDAE TO GONIADIDAE

(PLATES 31-44)

By OLGA HARTMAN

This is the second report on the polychaetous annelids collected by the Allan Hancock Pacific Expeditions from the tropical and subtropical eastern Pacific. It includes the families Chrysopetalidae, Amphinomidae, Euphrosynidae, Hesionidae, Stauronereidae, Nereidae, Nephthyidae, Glyceridae, and Goniadidae, in the order named.

A station list, below, includes only those stations of the expeditions which were represented in the families herein considered. Under each are given the species of these families collected.

- St. 2-33. Jan. 2, 1933. Tenacatita Bay, Jalisco, Mexico.
Eurythoë complanata (Pallas)
- St. 8-33. Jan. 17, 1933. La Libertad, Ecuador. With electric light, at night.
Platynereis polyscalma Chamberlin
Goniada acicula, new species
- St. 10-33. Jan. 18, 1933. La Libertad, Ecuador. Rocks south of Pt. St. Elena.
Eurythoë complanata (Pallas)
- St. 11-33. Jan. 18, 1933. Same as above. With electric light, at night.
Nereis riisei Grube
Platynereis polyscalma Chamberlin
Pseudonereis gallapagensis Kinberg
- St. 12-33. Jan. 19, 1933. Same as above. Dredging along village beach, in 4 fms.
Ceratonereis tentaculata Kinberg
Nereis riisei Grube
Uncinereis agassizi (Ehlers)
- St. 13-33. Jan. 19, 1933. Same as above. With electric light, at night.
Eurythoë complanata (Pallas)
Ceratonereis costae (Grube)
Nereis riisei Grube
Platynereis polyscalma Chamberlin

- St. 16-33. Jan. 20, 1933. Same as above. Rocks south of village.
Pseudonereis gallapagensis Kinberg
- St. 19-33. Jan. 21, 1933. Same as above. At Pt. Brava.
Pseudonereis gallapagensis Kinberg
- St. 21-33. Jan. 22, 1933. Salango Island, Ecuador.
Nereis paucignatha, new species
- St. 22-33. Jan. 22, 1933. La Plata Island, Ecuador.
Eurythoë complanata (Pallas)
- St. 27-33. Jan. 25, 1933. Gardner Bay, Hood Island, Galapagos.
Rocky pit.
Eurythoë complanata (Pallas)
- St. 33-33. Jan. 27, 1933. Black Beach Anchorage, Charles Island,
Galapagos. Shore.
Eurythoë complanata (Pallas)
- St. 41-33. Jan. 30, 1933. Chatham Island, Galapagos. Dredged east
of Wreck Bay, in 4 fms.
Eurythoë complanata (Pallas)
- St. 42-33. Jan. 31, 1933. Same as above. Opposite Kicker Rock. Shore.
Eurythoë complanata (Pallas)
- St. 48-33. Feb. 2, 1933. Barrington Island. In bay, along shore.
Eurythoë complanata (Pallas)
- St. 52-33. Feb. 4, 1933. Academy Bay, Indefatigable Island. Shore.
Eurythoë complanata (Pallas)
- St. 59-33. Feb. 6, 1933. Charles Island, Cormorant Bay. Dredged, in
13 fms.
Hesione intertexta Grube
- St. 66-33. Feb. 9, 1933. Albemarle Island, Tagus Cove. Dredged, in
10-20 fms.
Uncinereis agassizi (Ehlers)
- St. 69-33. Feb. 11, 1933. Albemarle Island, Albemarle Pt. Shore.
Eurythoë complanata (Pallas)
- St. 73-33. Feb. 13, 1933. Albemarle Island, Cartago Bay. North
Beach.
Eurythoë complanata (Pallas)
- St. 74-33. Feb. 14, 1933. Same as above. Dredged, in 3-6 fms.
Eurythoë complanata (Pallas)
- St. 94-33. Feb. 22, 1933. Tower Island, Darwin Bay. Coral, from
seal beach.
Eurythoë complanata (Pallas)

- St. 96-33. Feb. 24, 1933. Same as above.
Eurythoë complanata (Pallas)
- St. 99-33. Feb. 25, 1933. Tower Island, Darwin Bay. In tangles.
Nereis rüsei Grube
- St. 101-33. Feb. 26, 1933. Same as above. Seal beach, on shore.
Eurythoë complanata (Pallas)
- St. 114-33. Mar. 10, 1933. Bahia Honda, Panama. Near East Point.
In coral, from 2 fms.
Eurythoë complanata (Pallas)
Pherecardia striata (Kinberg)
Ceratonereis tentaculata Kinberg
- St. 116-33. Mar. 13, 1933. Puerto Culebra, Costa Rica. Cocos Bay.
Dredged, in 2 fms.
Eurythoë complanata (Pallas)
Glycinde multidentis F. Müller
- St. 120-33. Mar. 17, 1933. Petatlan Bay, Guerrero, Mexico. Shore.
Nereis rüsei Grube
- St. 124-33. Mar. 19, 1933. Isabel Island, Sinaloa, Mexico. Shore.
Eurythoë complanata (Pallas)
- St. 126-33. Mar. 21, 1933. Santa Maria Bay, Lower California,
Mexico. Dredged, in 0-25 fms.
Palaenotus chrysolepis Schmarda
- St. 127-33. Mar. 21, 1933. Same as above. Shore.
Nereis callaona Grube
- St. 132-34. Jan. 4, 1934. Braithwaite Bay, Socorro Island, Mexico.
Dredged, in 40 fms. Rock, nullipore fragments.
Nereis rüsei Grube
Glycera tessellata Grube
- St. 134-34. Jan. 5, 1934. Sulphur Bay, Clarion Island, Mexico.
Dredged, in 14 fms. Rocks, with nullipore fragments.
Eurythoë complanata (Pallas)
Hesione intertexta Grube
- St. 146-34. Jan. 12, 1934. Albemarle Island, north end. Shore col-
lecting south of point.
Eurythoë complanata (Pallas)
Pherecardia striata (Kinberg)

- St. 148-34. Jan. 13, 1934. Tagus Cove, Albemarle Island. Dredged, in 12-15 fms.
Hesione intertexta Grube
Nereis riisei Grube
Uncinereis agassizi (Ehlers)
- St. 154-34. Jan. 15, 1934. Albemarle Island, Tagus Cove. Reef, north of hill. Shore.
Pseudonereis gallapagensis Kinberg
- St. 161-34. Jan. 17, 1934. Charles Island, Galapagos. Taylor Rock. Dredged, in 0-3 fms.
Chloecia viridis Schmarda
Eurythoë complanata (Pallas)
Notopygos ornata Grube
- St. 163-34. Jan. 18, 1934. Same as above. Black Beach, shore.
Eurythoë complanata (Pallas)
- St. 167-34. Jan. 19, 1934. Same as above. Post Office Bay. Dredged, in 15 fms. Rock.
Hesione intertexta Grube
- St. 169-34. Jan. 20, 1934. Indefatigable Island, Academy Bay. Dredged. Rock, mostly covered with algae.
Hesione intertexta Grube
Uncinereis agassizi (Ehlers)
- St. 173-34. Jan. 22, 1934. South Seymour Island, Velero Bay. Dredged, in 5 fms. Sand, with rock patches.
Glycinde multidentis F. Müller
- St. 177-34. Jan. 23, 1934. Sullivan Bay, James Island, Galapagos. Dredged, in 5-20 fms. Rock, with sand patches.
Chloecia viridis Schmarda
Uncinereis agassizi (Ehlers)
- St. 182-34. Jan. 24, 1934. James Bay, James Island, Galapagos. Dredged, in 30 fms. Coarse sand.
Chloecia viridis Schmarda
Uncinereis agassizi (Ehlers)
- St. 185-34. Jan. 25, 1934. Albemarle Island, Cartago Bay. 2 miles from white rock. Dredged, in 32 fms. Mud.
Nephtys dibranchis Grube
- St. 187-34. Jan. 25, 1934. Same as above. Southwest part of bay. Dredged, in 8-10 fms. Sand, with occasional rock patches.
Nephtys dibranchis Grube

- St. 193-34. Jan. 27, 1934. Charles Island, Post Office Bay. Dredged, in 8-10 fms. Sand and rock, with algae.
Uncinereis agassizi (Ehlers)
- St. 194-34. Jan. 27, 1934. Same as above. Onslow Island. Coral, inside crater.
Eurythoë complanata (Pallas)
- St. 196-34. Jan. 29, 1934. Charles Island, north of island. Dredged, in 8-10 fms. Rough rock.
Chloëia viridis Schmarda
Eurythoë complanata (Pallas)
- St. 197-34. Jan. 29, 1934. Same as above. Dredged off point, in 35-40 fms. Rocky.
Ceratonereis tentaculata Kinberg
- St. 198-34. Jan. 29, 1934. Same as above. Dredged, in 55-65 fms. Sand.
Chloëia viridis Schmarda
- St. 202-34. Jan. 31, 1934. Gardner Bay, Hood Island. Osborn Island, shore.
Chloëia viridis Schmarda
Notopygos ornata Grube
- St. 204a-34. Feb. 8, 1934. Albemarle Island, Tagus Cove. From fish trap.
Chloëia viridis Schmarda
- St. 209-34. Feb. 9, 1934. La Libertad, Ecuador. North of Pt. St. Elena. Dredged, in 8-10 fms. Rock, with large shells and gorgonids.
Ceratonereis costae (Grube)
- St. 210-34. Feb. 9, 1934. Same as above. Between La Libertad and Salinas. Dredged, in 7-10 fms. Rock, with large shells and gorgonids.
Ceratonereis tentaculata Kinberg
- St. 210a-34. Feb. 9, 1934. Same as above. From fish trap.
Chloëia viridis Schmarda
- St. 213-34. Feb. 10, 1934. La Plata Island, Ecuador. North of anchorage. Dredged, in 7-10 fms. Rocky, with nullipores.
Chloëia entypa Chamberlin
Hesione intertexta Grube
Nephtys dibranchis Grube

- St. 218-34. Feb. 12, 1934. Gorgona Island, Colombia. North end of island, shore.
Eurythoë complanata (Pallas)
- St. 234-34. Feb. 14, 1934. Port Utria, Colombia. West side of terminal island. Dredged, in 20 fms. Sand and shells.
Uncinereis agassizi (Ehlers)
- St. 244-34. Feb. 21, 1934. Bahia Honda, Panama. Medidor and Pacora islands. Dredged, in 30-35 fms. Fine shell, mud, coarse sand.
Chloeia entypha Chamberlin
- St. 247-34. Feb. 21, 1934. Same as above. Porites coral.
Notopygos ornata Grube
Pherecardia striata (Kinberg)
- St. 248-34. Feb. 22, 1934. Same as above. Off south point of bay. Dredged, in 25-30 fms. Mud and shell.
Chloeia viridis Schmarda
Glycera americana Leidy
- St. 250-34. Feb. 22, 1934. Secas Islands, Panama. Dredged, south of islands, in 25 fms. Mud and dead shells.
Chloeia viridis Schmarda
Nephtys dibranchis Grube
- St. 259-34. Feb. 28, 1934. Tangola-Tangola, Mexico. Santa Cruz. Dredged, in 15-20 fms. Sand, gravel, shells, mud.
Nephtys magellanica Augener
- St. 260-34. Mar. 1, 1934. Same as above. Tangola Island. Shore.
Nereis pseudoneanthes Hartman
Pseudonereis gallapagensis Kinberg
- St. 274-34. Mar. 4, 1934. Tenacatita Bay, Mexico. Dredged, in 50 fms. Muddy sand.
Chloeia viridis Schmarda
- St. 277-34. Mar. 5, 1934. Isabel Island, Mexico. Dredged, around island, in 10-25 fms. Nullipores.
Chloeia viridis Schmarda
Ceratonereis tentaculata Kinberg
- St. 279-34. Mar. 7, 1934. Santa Maria Bay, Lower California. Hughes Point. Dredged, in 10 fms. Rough, rocky.
Chloeia viridis Schmarda
Nephtys magellanica Augener

- St. 280-34. Mar. 7, 1934. Same as above. South of Hughes Point. Dredged, in 30-40 fms. Sand.
Chloëia viridis Schmarda
Glycera americana Leidy
- St. 283-34. Mar. 9, 1934. Thurloe Bay, Lower California. Off Thurloe Point. Dredged, in 8-10 fms. Rock with gorgonids.
Nereis pelagica Linnaeus
Uncinereis agassizi (Ehlers)
Glycera tessellata Grube
- St. 284-34. Mar. 9, 1934. Same as above. Northwest of Thurloe Point. Dredged, in 30 fms. Coarse sand.
Nephtys californiensis Hartman
- St. 285-34. Mar. 9, 1934. Same as above. Dredged, in 30 fms. Shells.
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 288-34. Mar. 10, 1934. South Bay, Carros Island. Shore.
Nereis pseudoneanthes Hartman
- St. 289-34. June 8, 1934. Socorro Island, Mexico. East of Cape Rule. Dredged, in 4-15 fms.
Hesione intertexta Grube
- St. 305-34. June 11, 1934. Clarion Island, Mexico. South of anchorage. Dredged, in 15 fms.
Leocrates chinensis Kinberg
- St. 310-34. Dec. 3, 1934. Marchena Island, Galapagos. North Bay. Tangles, in 15 fms.
Hesione intertexta Grube
- St. 315-34. Dec. 8, 1934. Indefatigable Island. In coral, opposite Gordon rocks.
Eurythoë complanata (Pallas)
- St. 326-34. Dec. 10, 1934. Albemarle Island, Tagus Cove, south side. Dredged, in 15 fms.
Nereis pseudonereis, new species
- St. 336-34. Dec. 12, 1934. James Island, Sullivan Bay. Dredged, in 20 fms. Red algae.
Hesione intertexta Grube
- St. 357-34. Dec. 17, 1934. Hood Island, Galapagos. In coral.
Eurythoë complanata (Pallas)

- St. 364-35. Jan. 10, 1935. Callao, Peru. Parallel with Lorenzo Island. Dredged, in 3 fms.
Nereis pseudonereis, new species
Uncinereis agassizi (Ehlers)
- St. 366-35. Jan. 10, 1935. Callao, Peru. Between rocks south of Lorenzo Island. Dredged, in 8 fms.
Hesione simplex Grube
- St. 373-35. Jan. 12, 1935. Independencia Bay, Peru. East of Vieja Island. Dredged, in 12 fms.
Nereis veleronis, new species
- St. 374-35. Jan. 12, 1935. Same as above.
Nereis pseudonereis, new species
- St. 375-35. Jan. 13, 1935. Independencia Bay, Peru. Lee side of Vieja Island. Shore.
Hesione intertexta Grube
- St. 376-35. Jan. 13, 1935. Same as above. Dredged, in 7 fms.
Glycera papillosa Grube
- St. 379-35. Jan. 13, 1935. Same as above. Dredged, in 20 fms.
Nephtys caecoides ferruginea, new subspecies
Glycera americana Leidy
- St. 380-35. Jan. 14, 1935. Same as above. East side of bay. Shore.
Pseudonereis gallapagensis Kinberg
Glycera americana Leidy
- St. 381-35. Jan. 14, 1935. Same as above. East side of bay, off black cliff. Dredged, in 5 fms.
Glycera americana Leidy
- St. 384-35. Jan. 14, 1935. Same as above, $\frac{3}{4}$ mi. offshore. Dredged, in 5 fms.
Nereis pseudonereis, new species
Nereis veleronis, new species
Uncinereis agassizi (Ehlers)
- St. 385-35. Same as above, $1\frac{1}{4}$ mi. offshore. Dredged, in 9-10 fms. Red algae and gastropods.
Nereis veleronis, new species
- St. 391-35. Jan. 17, 1935. Lobos de Afuera, Peru. Main island, with light. Shore, with rocks.
Eurythoë complanata (Pallas)
Uncinereis agassizi (Ehlers)

- St. 395-35. Jan. 17, 1935. Same as above. South bay. Dredged, in 14-16 fms.
Nereis veleronis, new species
Uncinereis agassizi (Ehlers)
- St. 405-35. Jan. 22, 1935. Gorgona Island, Colombia. Shore, below sandy beach.
Eurythoë complanata (Pallas)
- St. 412-35. Jan. 22, 1935. Same as above. In coral, off coconut beach.
Eurythoë complanata (Pallas)
Notopygos ornata Grube
Euphrosyne panamica Chamberlin
- St. 413-35. Jan. 23, 1935. Port Utria, Colombia. Lee beach of island. Shore.
Eurythoë complanata (Pallas)
- St. 421-35. Jan. 25, 1935. Same as above. Dredged, in 40 fms. Soft mud.
Nephtys dibranchis Grube
- St. 431-35. Jan. 27, 1935. Octavia Bay, Colombia. North of Octavia, south end of channel. Dredged, in 45 fms. Sand and gravel.
Chloeia entypha Chamberlin
- St. 433-35. Jan. 27, 1935. Same as above. Island off peninsula. Shore, rock shingle.
Eurythoë complanata (Pallas)
- St. 436-35. Jan. 28, 1935. Piñas Bay, Panama. Shore.
Euphrosyne panamica Chamberlin
Nephtys dibranchis Grube
- St. 438-35. Jan. 29, 1935. Piñas Bay, Panama. North of first small island. Dredged, in 25 fms. Coarse sand.
Nephtys magellanica Augener
- St. 439-35. Jan. 29, 1935. Same as above. Dredged, in 20 fms. Mud and sand.
Euphrosyne aurantiaca Johnson
- St. 443-35. Jan. 29, 1935. Same as above. N.N.E. of Pt. Isle. Dredged, in 20 fms. Mud.
Chloeia viridis Schmarda
- St. 445-35. Feb. 2, 1935. Panama. Shore.
Nereis riisei Grube

- St. 446-35. Feb. 4, 1935. Secas Islands, Panama. Small grass-covered island, with reef. Shore.
Eurythoë complanata (Pallas)
Euphrosyne panamica Chamberlin
- St. 446b-35. Feb. 4, 1935. Same as above. Main island south of anchorage. Shore.
Eurythoë complanata (Pallas)
Notopygos ornata Grube
- St. 447-35. Feb. 4, 1935. Same as above. Large open cove on main island. In coral.
Eurythoë complanata (Pallas)
Notopygos ornata Grube
Pherecardia striata (Kinberg)
- St. 451-35. Feb. 5, 1935. Same as above. Toward anchorage from small island. Dredged, in 12 fms.
Nephtys panamensis Monro
- St. 454-35. Feb. 6, 1935. Same as above. Coral tide flat. Shore.
Pherecardia striata (Kinberg)
- St. 456-35. Feb. 6, 1935. Same as above. Dredged, in 12 fms.
Nephtys magellanica Augener
- St. 463-35. Feb. 8, 1935. Playa Blanca, Costa Rica. Off southeast point. Dredged, in 25 fms. Broken shells. Little life.
Glycera tessellata Grube
- St. 465-35. Feb. 8, 1935. Same as above. Shale outcrop between beach and rocky reef. Shore.
Eurythoë complanata (Pallas)
- St. 466-35. Feb. 9, 1935. Parker Bay, Costa Rica. Small island at north shore.
Eurythoë complanata (Pallas)
- St. 473-35. Feb. 9, 1935. Same as above. In coral.
Notopygos ornata Grube
- St. 477-35. Feb. 11, 1935. Salinas Bay, Costa Rica. Lee side of island, toward sand spit. Dredged, in 2 fms.
Glycinde multidentis F. Müller
- St. 481-35. Feb. 11, 1935. Same as above. Off end of island, toward rock to west. Dredged, in 6 fms.
Chloecia viridis Schmarda

- St. 492-36. Feb. 16, 1936. Pt. Tosco, Lower California. Dredged, in 45 fms. Green mud.
Nephtys caecoides ferruginea, new subspecies
Nephtys dibranchis Grube
Glycera americana Leidy
- St. 495-36. Feb. 18, 1936. East of Cape San Lucas, Lower California. Dredged, in 10-15 fms. Sand.
Chloeia viridis Schmarda
Nereis rüsei Grube
Platynereis polyscalma Chamberlin
Uncinereis agassizi (Ehlers)
Nephtys assimilis (Oersted)
- St. 498-36. Feb. 19, 1936. San Lorenzo Channel, south of Espiritu Santo Island, Gulf of California. Dredged, in 5-15 fms. Coralline algae.
Eurythoë complanata (Pallas)
Ceratonereis tentaculata Kinberg
Nereis rüsei Grube
- St. 499-36. Feb. 19, 1936. Same as above. In sand.
Nephtys panamensis Monro
Glycera americana Leidy
Goniada acicula, new species
- St. 500-36. Feb. 20, 1936. Espiritu Santo Island, Gulf of California. Sand and rock beach opposite anchorage. Shore.
Eurythoë complanata (Pallas)
- St. 501-36. Feb. 20, 1936. Same as above. In coral heads, in 1-6 fms.
Eurythoë complanata (Pallas)
- St. 503-36. Feb. 21, 1936. La Paz Bay, Gulf of California. Off lighthouse. In corallines, in 5 fms.
Hesione intertexta Grube
Platynereis polyscalma Chamberlin
- St. 510-36. Feb. 22, 1936. Espiritu Santo Island, Gulf of California. Cove south of Ballena Bay. Shore.
Eurythoë complanata (Pallas)
- St. 513-36. Feb. 24, 1936. Off San Francisco Island, Gulf of California. Dredged, in 30 fms. Corallines.
Chloeia viridis Schmarda
Nephtys dibranchis Grube

- St. 516-36. Feb. 25, 1936. East of San Francisco Island, Gulf of California. Dredged, in 120-150 fms.
Chloecia viridis Schmarda
- St. 518-36. Feb. 25, 1936. North bay of San Francisco Island, Gulf of California. Shore.
Eurythoë complanata (Pallas)
- St. 525-36. Feb. 28, 1936. Channel west of Coronados Island, Gulf of California. Dredged, in 3-10 fms. Corallines.
Ceratonereis tentaculata Kinberg
- St. 530-36. Mar. 1, 1936. Off San Francisquito Bay, Gulf of California. Dredged, in 10-20 fms. Coral, kelp, nullipores.
Uncinereis agassizi (Ehlers)
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 532-36. Mar. 2, 1936. Same as above. Dredged, in 20 fms. Sand and kelp.
Uncinereis agassizi (Ehlers)
- St. 533-36. Mar. 2, 1936. Same as above. Dredged, in 40 fms. Broken shell, sand.
Notopygos ornata Grube
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 536-36. Mar. 2, 1936. Middle of Angeles Bay, Gulf of California. Dredged, in 20 fms. Mud.
Chloecia viridis Schmarda
- St. 545-36. Mar. 4, 1936. In Puerto Refugio, Angel de la Guardia Island, Gulf of California. Dredged, in 60 fms. Broken shell.
Eurythoë complanata (Pallas)
- St. 546-36. Mar. 5, 1936. North of Angel de la Guardia Island. Dredged, in 40-70 fms.
Chloecia viridis Schmarda
Nephtys squamosa Ehlers
- St. 549-36. Mar. 6, 1936. East of Angel de la Guardia Island. Dredged, in 40 fms.
Notopygos ornata Grube
Ceratonereis tentaculata Kinberg
Uncinereis agassizi (Ehlers)
Nephtys magellanica Augener
Glycera tessellata Grube
Goniada acicula, new species

- St. 558-36. Mar. 9, 1936. Off Isla Partida to the south. Dredged, in 20 fms. Gravel and shell.
Chloeia viridis Schmarda
- St. 559-36. Mar. 9, 1936. Off Isla Partida to the south. Dredged, in 45 fms. Sand.
Euphrosyne bicirrata Moore
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 561-36. Mar. 9, 1936. South of Isla Partida to the south. Dredged, in 40 fms. Coral, sand.
Chloeia viridis Schmarda
Glycera tessellata Grube
- St. 563-36. Mar. 10, 1936. South end of Tiburon Island, Gulf of California. Dredged, in 40-55 fms. Muddy sand.
Chloeia viridis Schmarda
Uncinereis agassizi (Ehlers)
- St. 567-36. Mar. 11, 1936. Bay, south end of Tiburon Island. Dredged, in 4 fms. Ulva and sand.
?*Uncinereis agassizi* (Ehlers)
- St. 576-36. Mar. 13, 1936. Between anchorage and Tortuga Island, south end, Gulf of California. Dredged, in 21 fms. Volcanic sand.
Chloeia viridis Schmarda
Hesione intertexta Grube
- St. 577-36. Mar. 13, 1936. Off south end of Tortuga Island. Dredged, in 40 fms. Sand.
Nephtys magellanica Augener
- St. 585-36. Mar. 14, 1936. Concepcion Bay, Gulf of California. Coyote Bay. Dredged, in 2-3 fms. Kelp.
Hesione intertexta Grube
- St. 607-36. Mar. 21, 1936. San Lorenzo Channel, Espiritu Santo Island, Gulf of California. Dredged, in 24 fms. Corallines.
Ceratonereis tentaculata Kinberg
- St. 610-37. Feb. 15, 1937. Santa Rosalia Bay, Gulf of California. Dredged, in 15 fms. Sand, kelp.
Uncinereis agassizi (Ehlers)
- St. 616-37. Mar. 2, 1937. San Juanico Bay, Gulf of California. Dredged, in 16 fms. Kelp and rock.
Nephtys caecoides Hartman

- St. 620-37. Mar. 3, 1937. Cabeza Ballena, east of Cape San Lucas, Gulf of California. Dredged, in 25 fms.
Nephtys magellanica Augener
- St. 622-37. Mar. 3, 1937. Same as above. With electric light, at night.
Platynereis polyscalma Chamberlin
- St. 623-37. Mar. 4, 1937. Same as above. Shore.
Eurythoë complanata (Pallas)
- St. 626-37. Mar. 5, 1937. Ensenada de la Muertos, Gulf of California. Shore.
Eurythoë complanata (Pallas)
- St. 627-37. Mar. 5, 1937. Same as above. Dredged, in 5 fms. Sand.
Chloëia viridis Schmarda
Hesione intertexta Grube
- St. 628-37. Mar. 5, 1937. Same as above. Dredged, in 10-12 fms. Corallines.
Nephtys magellanica Augener
- St. 632-37. Mar. 6, 1937. San Gabriel Bay, Espiritu Santo Island, Gulf of California. Dredged, in 24 fms. Sandy mud.
Nephtys squamosa Ehlers
Glycera americana Leidy
- St. 633-37. Mar. 6, 1937. Same as above. Dredged, in 18 fms. Corallines.
Eurythoë complanata (Pallas)
Leocrates chinensis Kinberg
Ceratonereis tentaculata Kinberg
Nereis riisei Grube
Nephtys inermis Ehlers
- St. 634-37. Mar. 6, 1937. Same as above. Shore, corals.
Eurythoë complanata (Pallas)
Ceratonereis tentaculata Kinberg
- St. 638-37. Mar. 7, 1937. Same as above. Shore, corals.
Eurythoë complanata (Pallas)
Ceratonereis tentaculata Kinberg
- St. 639-37. Mar. 7, 1937. San Lorenzo Channel, Espiritu Santo Island. Dredged, in 3-5 fms. Sand, algae, corallines.
Ceratonereis tentaculata Kinberg
Platynereis polyscalma Chamberlin

- St. 643-37. Mar. 8, 1937. Off Ballena Bay, Espiritu Santo Island. Dredged, in 8 fms. Corallines.
Nereis riisei Grube
- St. 661-37. Mar. 10, 1937. Agua Verde Bay, Gulf of California. Anchorage. With electric light, at night.
Chloeia viridis Schmarda
- St. 662-37. Mar. 11, 1937. Same as above. Off San Marcial reef. Dredged, in 8 fms.
Chloeia viridis Schmarda
Ceratonereis tentaculata Kinberg
Nephtys magellanica Augener
- St. 664-37. Mar. 11, 1937. Same as above. San Marcial reef. Shore.
Eurythoë complanata (Pallas)
- St. 667-37. Mar. 12, 1937. Escondido Bay, Gulf of California. Off Carmen Island. Dredged, in 60 fms.
Chloeia viridis Schmarda
Nephtys dibranchis Grube
- St. 668-37. Mar. 12, 1937. Same as above. Dredged, in 20 fms. Mud and sand.
Chloeia viridis Schmarda
Nephtys dibranchis Grube
- St. 669-37. Mar. 12, 1937. Same as above. Off Danzante. Dredged, in 34 fms.
Nephtys squamosa Ehlers
- St. 675-37. Mar. 15, 1937. Off Pulpito Rock, Gulf of California. Dredged, in 55 fms. Sand, small rocks.
Chloeia viridis Schmarda
Nereis pelagica Linnaeus
Nephtys magellanica Augener
- St. 677-37. Mar. 15, 1937. Ildefonso Island, Gulf of California. Dredged, in 50 fms.
Chloeia viridis Schmarda
Nephtys magellanica Augener
- St. 683-37. Mar. 15, 1937. Outside Concepcion Bay, Gulf of California. Dredged, in 12 fms. Corallines.
Ceratonereis tentaculata Kinberg
Uncinereis agassizi (Ehlers)

- St. 688-37. Mar. 16, 1937. Concepcion Bay. Dredged, in 12 fms.
Sand and mud.
Hesione intertexta Grube
Ceratonereis tentaculata Kinberg
Glycera americana Leidy
- St. 692-37. Mar. 17, 1937. Tortuga Island, Gulf of California.
Dredged, in 18 fms.
Chloeia viridis Schmarda
Nephtys magellanica Augener
- St. 696-37. Mar. 18, 1937. Same as above. Dredged, in 45 fms. Sand.
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 701-37. Mar. 20, 1937. Angeles Bay, Gulf of California. Dredged,
in 32 fms. Sand and shell.
Chloeia viridis Schmarda
- St. 702-37. Mar. 20, 1937. Same as above. Dredged, in 18 fms.
Coarse sand.
Ceratonereis costae (Grube)
Nephtys magellanica Augener
- St. 704-37. Mar. 20, 1937. Puerto Refugio, Angel de la Guardia
Island, Gulf of California. Dredged, in 20 fms. Corallines.
Glycera tessellata Grube
- St. 705-37. Mar. 20, 1937. Same as above. Dredged, in 15 fms.
Coarse sand.
Nephtys magellanica Augener
- St. 706-37. Mar. 20, 1937. Same as above. Dredged, in 8-10 fms.
Ulva.
Uncinereis agassizi (Ehlers)
Nephtys magellanica Augener
- St. 707-37. Mar. 20, 1937. Same as above. Shore. Rocky.
Eurythoë complanata (Pallas)
- St. 708-37. Mar. 21, 1937. Same as above. Dredged, in 60 fms. Sand.
Eurythoë complanata (Pallas)
- St. 711-37. Mar. 21, 1937. Same as above. Dredged, in 40 fms. Sand.
Chloeia viridis Schmarda
- St. 714-37. Mar. 23, 1937. Willards Point, Gonzaga Bay, Gulf of
California. Dredged, in 16-30 fms. Rock, mud.
Chloeia viridis Schmarda

- St. 719-37. Mar. 24, 1937. Consag Rock, Gulf of California. Dredged, in 10-25 fms.
Hesione intertexta Grube
- St. 725-37. Mar. 26, 1937. North of Lobos Point, Sonora, Mexico. Dredged, in 10 fms. Sand.
Chloeia viridis Schmarda
Nephtys magellanica Augener
- St. 728-37. Mar. 27, 1937. San Esteban Island, Gulf of California. Shore, rocky.
Leptonereis glauca moniloceras, new subspecies
Nereis flavipes Ehlers
- St. 732-37. Mar. 28, 1937. Tiburon Island, Gulf of California. Dredged, in 12 fms.
Nephtys magellanica Augener
Glycera tessellata Grube
- St. 733-37. Mar. 29, 1937. San Pedro Nolasco Island, Gulf of California. Dredged, in 45 fms. Rock, sand.
Glycera tessellata Grube
- St. 734-37. Mar. 29, 1937. Same as above. Dredged, in 75 fms. Sand.
Chloeia viridis Schmarda
Nephtys magellanica Augener
- St. 735-37. Mar. 29, 1937. Same as above. Dredged, in 110 fms. Sand.
Nephtys squamosa Ehlers
- St. 739-37. Mar. 30, 1937. Ensenada de San Francisco, Sonora, Mexico. Shore. Rock shingles.
Eurythoë complanata (Pallas)
- St. 740-37. Mar. 31, 1937. San Ignacio Bay, Sinaloa, Mexico. Dredged, in 3-5 fms. Sand.
Glycera americana Leidy
- St. 745-37. Apr. 2, 1937. Isabel Island, Sinaloa, Mexico. Dredged, in 10-18 fms. Corallines, nullipores.
Hesione intertexta Grube
Glycera tessellata Grube
- St. 746-37. Apr. 2, 1937. Same as above. West of anchorage. Shore. Corallines.
Eurythoë complanata (Pallas)

- St. 747-37. Apr. 2, 1937. Same as above. Dredged, in 10-18 fms. Corallines.
Nephtys magellanica Augener
- St. 751-37. Apr. 4, 1937. Los Frailes, Lower California. Dredged, in 5-15 fms. Sand and algae.
Chloëia viridis Schmarda
- St. 770-38. Jan. 5, 1938. Off San Jose Light, Guatemala. Dredged, in 7-11 fms. Black sand, shell, mud.
Nephtys dibranchis Grube
Nephtys assimilis Oersted
Glycera convoluta Keferstein
- St. 779-38. Jan. 14, 1938. Off Nuez Island, Cocos Island, Costa Rica. Dredged, in 30-50 fms. Rock, coral and corallines.
Chloëia viridis Schmarda
- St. 782-38. Jan. 16, 1938. Darwin Bay, Tower Island, Galapagos. Shore. Rock, at Seal Beach.
Eurythoë complanata (Pallas)
- St. 783-38. Jan. 16, 1938. Same as above. Dredged, in 40-70 fms. White sand, rock.
Notopygos ornata Grube
- St. 784-38. Jan. 17, 1938. Same as above. Shore. Rock, at Middle Beach.
Eurythoë complanata (Pallas)
- St. 786-38. Jan. 18, 1938. Northeast of Indefatigable Island. Dredged, in 392 fms. Sand.
?Glycera oxycephala Ehlers
- St. 788-38. Jan. 19, 1938. South and east of Daphne Major Island, Galapagos. Dredged, in 55 fms. Coral, shell.
Nereis riisei Grube
- St. 789-38. Jan. 19, 1938. South Seymour Island, Galapagos. Shore. Rocky.
Eurythoë complanata (Pallas)
- St. 796-38. Jan. 21, 1938. Sullivan Bay, James Island, Galapagos. Shore. Rocky.
Eurythoë complanata (Pallas)
- St. 811-38. Jan. 26, 1938. Barrington Island, Galapagos. In coral.
Eurythoë complanata (Pallas)
Hesione intertexta Grube

- St. 814-38. Jan. 28, 1938. North of Hood Island, Galapagos.
Dredged, in 20-40 fms. Sand, shell.
Chloeia viridis Schmarda
- St. 820-38. Feb. 6, 1938. San Nicholas Bay, Peru. Dredged, in 10-25 fms. Mud.
Nephtys caecoides ferruginea, new subspecies
- St. 823-38. Feb. 7, 1938. San Juan Bay, Peru. Dredged, in 30-40 fms. Mud.
Nephtys caecoides ferruginea, new subspecies
- St. 826-38. Feb. 7, 1938. Same as above. Dredged, in 20-30 fms. Sand, shell.
Nephtys lobophora, new species
Glycera americana Leidy
- St. 832-38. Feb. 10, 1938. Independencia Bay, Peru. Dredged, in 10 fms. Shells, sand, algae.
Nephtys lobophora, new species
- St. 833-38. Feb. 10, 1938. Same as above. Off north entrance. Dredged, in 8 fms. Sand, shell.
Nephtys magellanica Augener
Glycera americana Leidy
- St. 834-38. Feb. 10, 1938. Same as above. Off east rocky point. Dredged, in 21 fms. Mud.
Nephtys caecoides ferruginea, new subspecies
- St. 835-38. Feb. 10, 1938. Same as above. South end. Dredged, in 18 fms. Sand, shell, rock.
Glycera americana Leidy
- St. 837-38. Feb. 11, 1938. North Chincha Island, Peru. Shore. Rocky.
Pseudonereis gallapagensis Kinberg
- St. 843-38. Feb. 14, 1938. Lobos de Afuera Island, Peru. Dredged, in 25-30 fms. Sand, shell.
Uncinereis agassizi (Ehlers)
? *Nephtys magellanica* Augener
Glycera americana Leidy
- St. 844-38. Feb. 14, 1938. Same as above. Shore. Rocky.
Eurythoë complanata (Pallas)
- St. 845-38. Feb. 15, 1938. Sechura Bay, Peru. Dredged, in 9½ fms. Coarse sand, red algae.
Uncinereis agassizi (Ehlers)
Nephtys magellanica Augener

- St. 846-38. Feb. 15, 1938. Same as above. Dredged, in 6 fms. Sand and fine broken shell.
Hemipodus simplex (Grube)
- St. 855-38. Feb. 24, 1938. Gorgona Island, Colombia. North of island. Dredged, in 10-20 fms. Mud, rocks.
Chloeia entypa Chamberlin
- St. 856-38. Feb. 25, 1938. Port Utria, Choco, Colombia. Dredged, in 15-30 fms. Mud, sand.
Nephtys squamosa Ehlers
- St. 863-38. Mar. 1, 1938. Bahia Honda, Panama. Off north island. Dredged, in 30-50 fms. Rock, sand.
Nephtys inermis Ehlers
Glycera tessellata Grube
- St. 867-38. Mar. 2, 1938. Secas Islands, Panama. Shore. Coral.
Eurythoë complanata (Pallas)
Pherecardia striata (Kinberg)
- St. 870-38. Mar. 8, 1938. Isabel Island, Mexico. Dredged, in 10-15 fms. Corallines.
Nephtys magellanica Augener
- St. 871-38. Mar. 11, 1938. 4¾ miles east of Coronados Island, Mexico. Dredged, in 14 fms. Sand, kelp.
Nephtys californiensis Hartman
- St. 874-38. Aug. 1, 1938. Northeast of Anacapa Island, California. Dredged, in 45 fms. Dead shell.
Euphrosyne aurantiaca Johnson
Nereis pelagica Linnaeus
- St. 876-38. Aug. 1, 1938. Same as above. Dredged, in 45 fms.
Chloeia entypa Chamberlin
Nephtys caecoides Hartman
Nephtys caecoides ferruginea, new subspecies
Glycera americana Leidy
- St. 881-38. Aug. 2, 1938. East of Santa Rosa Island, California. Dredged, in 10 fms.
Uncinereis agassizi (Ehlers)
- St. 882-38. Mar. 3, 1938. South of San Miguel Island, California. Dredged, in 15 fms. Sand and shell.
Uncinereis agassizi (Ehlers)

- St. 885-38. Aug. 4, 1938. San Luis Obispo Bay, California. Dredged, in 8-14 fms.
Nereis latescens Chamberlin
Nephtys caecoides Hartman
- St. 886-38. Aug. 5, 1938. Off Half Moon Bay, California. Dredged, in 16 fms. Coarse gravel.
Nephtys caecoides Hartman
Glycera americana Leidy
- St. 887-38. Aug. 7, 1938. East of Middle Farallon Island, California. Dredged, in 37 fms.
Cheilonereis cyclurus (Harrington)
Nephtys caecoides Hartman
Glycera americana Leidy
? *Glycera oxycephala* Ehlers
Glycera rouxii Audouin and Edwards
Goniada maculata Oersted
- St. 888-38. Aug. 8, 1938. Monterey Bay, California. Dredged, in 10-13 fms. Fine sand.
Uncinereis agassizi (Ehlers)
Nephtys caecoides Hartman
- St. 889-38. Aug. 8, 1938. Monterey Bay, off Pt. Piños, California. Dredged, in 36 fms. Broken shell.
Nephtys caecoides Hartman
Glycera americana Leidy
? *Glycera oxycephala* Ehlers
Goniada maculata Oersted
- St. 890-38. Aug. 8, 1938. Same as above. Dredged, in 49-54 fms.
Glycera americana Leidy
Glycinde multidentis F. Müller
- St. 891-38. Aug. 8, 1938. Outside Monterey Bay, California. Dredged, in 26 fms.
Nephtys caecoides Hartman
Glycera americana Leidy
Glycinde multidentis F. Müller
- St. 892-38. Aug. 9, 1938. In and around Carmel Bay, California. Shoal, to 40 fms.
Nephtys caecoides Hartman
Glycera americana Leidy
Glycinde multidentis F. Müller

- St. 893-38. Aug. 10, 1938. Off Pt. Arguello, California. Dredged, in 15-30 fms. Sand and algae.
Nephtys caecoides Hartman
Glycinde multidentis F. Müller
- St. 894-38. Aug. 10, 1938. South of San Miguel Island. Dredged, in 5-15 fms. Kelp.
Nephtys caecoides Hartman
- St. 896-38. Sept. 12-14, 1938. San Miguel Island, California. Dredged.
Nephtys caecoides Hartman
- St. 897-38. Same as above.
Nereis pelagica Linnaeus
Nephtys caecoides Hartman
Glycera americana Leidy
- St. 898-38. Same as above.
Uncinereis agassizi (Ehlers)
- St. 900-38. Nov. 18, 1938. Off Long Point, Catalina Island. Dredged, in 40 fms. Brachiopod and sponge clusters.
Nereis pelagica Linnaeus
Leptonereis glauca moniloceras, new subspecies
Uncinereis agassizi (Ehlers)
Nephtys squamosa Ehlers
Glycera tesselata Grube
- St. 901-38. Nov. 20, 1938. Point Fermin, California. Shore.
Nereis neonigripes Hartman
- St. 902-38. Nov. 21, 1938. Portuguese Bend, California. Shore.
Pareurythoë californica (Johnson)
Podarke pugettensis Johnson
Nereis mediator Chamberlin
- St. 903-38. Dec. 5, 1938. Anaheim Slough, California. Shore. Fine sand and mud flats, with some *Zostera*.
Nephtys caecoides Hartman
Glycera americana Leidy
Glycera convoluta Keferstein
Glycera longissima Arwidsson
Goniada uncinigera Ehlers
- St. 904-38. Dec. 6, 1938. Laguna Beach, California. Shore, near pier.
Pareurythoë californica (Johnson)
Nereis mediator Chamberlin
Nereis latescens Chamberlin

- St. 905-38. Dec. 7, 1938. Same as for St. 903-38.
Nephtys caecoides Hartman
Glycera americana Leidy
- St. 906-38. Dec. 8, 1938. Portuguese Bend, California. Reefs at southern end. Shore.
Euphrosyne aurantiaca Johnson
Pareurythoë californica (Johnson)
Nereis mediator Chamberlin
Nephtys californiensis Hartman
- St. 907-38. Dec. 9, 1938. Bluff Cove, between Portuguese Bend and Redondo Beach, California. Shore.
Pareurythoë californica (Johnson)
- St. 908-39. Jan. 28, 1939. Off White's Point, Catalina Island. Dredged, in 45 fms. Coarse sand.
Nephtys caecoides Hartman
- St. 909-39. Jan. 29, 1939. Off Emerald Bay, Catalina Island. Dredged, in 60-90 fms. Mud.
Nephtys caecoides Hartman
Glycinde multidentis F. Müller
- St. 910-39. Feb. 12, 1939. Portuguese Bend, California. Shore. Rocky beach.
Neanthes brandti (Malmgren)
Glycera americana Leidy
Hemipodus borealis Johnson
- St. 911-39. Feb. 18, 1939. San Clemente Island, California. Wilson Cove. In 60-85 fms.
Nereis pelagica Linnaeus
- St. 913-39. Feb. 18, 1939. Same as above. Pyramid Cove. In 35-46 fms.
Nereis mediator Chamberlin
Nephtys caecoides Hartman
Nephtys squamosa Ehlers
- St. 914-39. Feb. 19, 1939. Same as above. In 214 fms.
? *Glycera oxycephala* Ehlers
Glycera tessellata Grube

The following are collections in The University of Southern California, made by various people, previous to the Allan Hancock Pacific Expeditions.

- D-53. Seal Beach, southern California. Dredged, in 3 fms.
Glycera americana Leidy
- D-88. East from breakwater, near San Pedro, California. Dredged, in 8 fms.
Glycera americana Leidy
- D-93. Near Rocky Point, southern California. Dredged.
Uncinereis agassizi (Ehlers)
Nephtys californiensis Hartman
- D-103. Off White's Point, Catalina Island. Dredged.
Glycera americana Leidy
- D-104. Off Catalina Island. Dredged.
Uncinereis agassizi (Ehlers)
- Mission Bay, southern California.
Nephtys caecoides Hartman
Nephtys punctata Hartman
Glycera convoluta Keferstein
Glycera dibranchiata Ehlers
Glycera robusta Ehlers
Hemipodus borealis Johnson
Glycinde multidentis F. Müller

TABLE I

Name of Species	LOCALITIES						
	California	Gulf of Calif.	W. Mexico, Costa Rica	Panama	Colombia	Ecuador & Peru	Cocos Island Galapagos
Chrysopetalidae							
<i>Palaenotus chrysolepis</i>			126				
Amphinomidae							
<i>Chloea entypa</i>	876			213, 431	855	213	
<i>C. pinnata</i>	914, 915						
<i>C. viridis</i>		numerous	277, 481, 725, 779	218, 250, 443			numerous
<i>Eurythoe complanata</i>		numerous	numerous	numerous	numerous	numerous	numerous
<i>Notopygos ornata</i>		533, 549	473	271, 446, 447	412		numerous 161, 202, 783
<i>Pareurythoe californica</i>	numerous						
<i>Pherecardia striata</i>				numerous			146
Euprosynidae							
<i>Euprosyne aurantiaca</i>	874, 906			439			
<i>E. bicirrata</i>		559					
<i>E. panamica</i>				436, 446	412		
Hesionidae							
<i>Hesionia intertexta</i>		numerous	134, 289, 745			213	numerous
<i>Leocrates chinensis</i>		633	305				
<i>Podarke pugettensis</i>	902						
Nereidae							
<i>Ceratonereis costae</i>		702					13, 209

<i>Name of Species</i>	LOCALITIES						
	<i>Calif- ornia</i>	<i>Gulf of Calif.</i>	<i>W. Mexico, Costa Rica</i>	<i>Panama</i>	<i>Colombia</i>	<i>Ecuador & Peru</i>	<i>Cocos Island Galapagos</i>
<i>C. tentaculata</i>	numerous		277	114		12, 210	197
<i>Cheilonereis cyclurus</i>	887						
<i>Leptonereis moniloceras</i>	900	728					
<i>Neanthes brandti</i>	numerous						
<i>Nereis callaona</i>		127					
<i>N. flavipes</i>		728					
<i>N. latescens</i>	numerous						
<i>N. mediator</i>	902-906						
<i>N. neonigripes</i>	901						
<i>N. paucignatha</i>						21	
<i>N. pelagica</i>	numerous	283, 675					
<i>N. pseudoneanthes</i>		288	260				
<i>N. pseudonereis</i>						364, 374, 384	326
<i>N. riisei</i>		numerous	120, 132	4+5		11, 12, 13	99, 148, 788
<i>N. veleronis</i>						373, 384, 385, 395	
<i>Perinereis monterea</i>	numerous					8, 11, 13	
<i>Platynereis polyscalma</i>		495, 503, 622, 639					
<i>Pseudonereis gallapagensis</i>						11, 16, 19, 380, 387	154, Tagus, Marchena
<i>Uncinereis agassizi</i>	numerous	numerous	563		234	numerous	numerous

Name of Species	LOCALITIES						
	Calif.- fornia	Gulf of Calif.	W. Mexico, Costa Rica	Panama	Colombia	Ecuador & Peru	Cocos Island Galapagos
Nephtyidae							
<i>Nephtys assimilis</i>		495	770				
<i>N. caecoides</i>	numerous	616					
<i>N. ferruginea</i>	876	492				379, 820, 823, 834	
<i>N. californiensis</i>	numerous	284, 871					
<i>N. dibranchis</i>		492, 513, 667, 668	770	250, 436	421	213	184, 185
<i>N. inermis</i>		633		863			
<i>N. lobophora</i>						826, 832	
<i>N. macrooura peruana</i>						823, 833	
<i>N. magellanica</i>		numerous	259, 725, 747, 870	438, 456		833, 7843, 845	
<i>N. panamensis</i>		499		451			
<i>N. punctata</i>	Mission B.						
<i>N. squamosa</i>	900, 913	546, 632, 669, 735			856		
Glyceridae							
<i>Glyceria americana</i>	numerous	numerous	740	248		numerous	
<i>G. convoluta</i>	Mission B., 903		770				
<i>G. dibranchiata</i>	Mission B.						
<i>G. longissima</i>	903						
? <i>G. oxycephala</i>	887, 889, 914						786

LOCALITIES

<i>Name of Species</i>	<i>Calif- ornia</i>	<i>Gulf of Calif.</i>	<i>W. Mexico, Costa Rica</i>	<i>Panama</i>	<i>Colombia</i>	<i>Ecuador & Peru</i>	<i>Cocos Island</i>	<i>Galapagos</i>
<i>G. papillosa</i>						376		
<i>G. robusta</i>	Mission B.							
<i>G. rouxii</i>	887							
<i>G. tessellata</i>	900, 914	numerous	132, 463, 745	863				
<i>Hemipodus borealis</i>	Mission B., 910							
<i>H. simplex</i>						366, 375, 846		
<i>Goniadidae</i>								
<i>Glycinde multidentis</i>	890, 893, 909, Mission B.		116, 477					173
<i>Goniada acicula</i>		499, 549				8		
<i>G. maculata</i>	887, 889							
<i>G. uncinigera</i>	903							

Family **Chrysopetalidae**Genus **PALEANOTUS** Schmarda

Differs from *Chrysopetalum* Ehlers in that the notopodium is provided with 2 kinds of setae: (1) broad spatulate in the supraacicular fascicle, and (2) narrower, more pointed setae in the subacicular fascicle. Includes *Heteropale* Johnson.

Paleanotus chrysolepis Schmarda

Paleanotus chrysolepis Schmarda, 1861, p. 163, pl. 37, figs. 326-329; Augener, 1913, pp. 76-78; Monro, 1933, p. 19; Day, 1934, p. 29.

Heteropale bellis Johnson, 1897, pp. 163-164, pl. 6, figs. 20-23; Berkeley, 1923, p. 212; 1932, p. 311.

Collection.—126-33. One specimen.

The single individual is ovigerous, incomplete posteriorly. Its small size, inconspicuous coloration, and fragility do not favor its discovery in collections, although it is perhaps much more commonly present than its incidence in collections would indicate.

Distribution.—Cape of Good Hope; north and east Pacific, from British Columbia south to Peru. Littoral.

Family **Amphinomidae**

Seven species in 5 genera are represented in the collections. These are separable as follows.

1. Body long, subcylindrical; branchiae arborescent, forming compact tufts along the notopodial ridge; caruncle a smooth or sinuate crest (pl. 31, fig. 1) 2
1. Body short, depressed oval; branchiae tuftlike or pinnatifid; caruncle forms a plaited crest or is laterally lamellated 3
2. Caruncle reduced, extends posteriorly to middle of second setigerous segment; posterior bifurcated neuropodial setae with one or several denticulations on the main fang (pl. 31, fig. 6); smaller, to 50 mm long . . . *Pareurythoë californica*, p. 203
2. Caruncle larger, conceals much of the prostomium and extends posteriorly beyond the third setigerous segment (pl. 31, fig. 1); most of the posterior bifurcated setae are smooth; larger, to about 350 mm long *Eurythoë complanata*, p. 202

3. Caruncle with paired series of elongate lamellations; the dorsum of each segment marked with 8 to 12 lines parallel to one another, but discontinuous at the intersegmental furrows. *Pherecardia striata*, p. 207
3. Caruncle with a plaited crest; the dorsum of each segment with or without pigmented pattern, but not with numerous lines parallel to one another 4
4. Branchiae form compact tufts over the notopodial ridge; dorsum with a pair of broken stripes; caruncle with a high median crest and a pair of spreading lateral crenulated lobes *Notopygos ornata*, p. 207
4. Branchiae pinnatifid, recurving over dorsum; caruncle with a plaited crest, the lateral lobes proximal to the median *Chloeia* 5
5. Posterior bifurcated notopodial setae with smooth distal fang, the secondary fang very short so as to resemble only a blunt projection; dorsal pigmented pattern consists of 3 longitudinal stripes *C. viridis*, p. 205
5. Some posterior bifurcated notopodial setae with some serrations on the main fang; secondary fang much larger 6
6. Posterior bifurcated notopodial setae serrated on the outer side of the main fang, the serrations directed downward (pl. 32, fig. 15); dorsum with a single, broad, longitudinal stripe *C. entypa*, p. 205
6. Posterior bifurcated setae with serrations on the inner side, the serrations directed distally (pl. 31, fig. 12); dorsum without a pigmented pattern *C. pinnata*, p. 206

Genus EURYTHOË Kinberg

Eurythoë complanata (Pallas)

Plate 31, Figs. 1-4

Eurythoë complanata Augener, 1913, pp. 87-89 (synonymy); Monro, 1933, pp. 4-5; Okuda, 1937, pp. 263-266, figs. 1-2.

Collections.—2-33, 10-33, 13-33, 22-33, 27-33, 33-33, 41-33, 42-33, 48-33, 52-33, 69-33, 73-33, 74-33, 94-33, 96-33, 101-33, 114-33, 116-33, 124-33, 134-33, 146-34, 161-34, 194-34, 196-34, 218-34, 315-35, 357-35, 391-35, 405-35, 412-35, 413-35, 433-35, 446-35, 447-35, 465-35, 466-35, 498-36, 500-36, 501-36, 510-36, 518-36, 545-36, 623-37, 626-37, 633-37, 634-37, 638-37, 664-37, 707-37, 708-37, 739-38, 782-38, 784-38, 789-38, 796-38, 811-38, 844-38, 867-38. About 300 specimens.

The largest specimen (Galapagos Islands) is about 350 mm long; its width without, 17 mm, with setae, 20 mm. An individual from 626-37 has dark dorsal and ventral cirri, otherwise it is pale, as usual. Another, from 446-35, has an accessory lateral caruncle. A small individual from 708-38, only 23 mm long, has a regenerated prostomium and first setigerous segment.

Augener (1922, p. 172) studied collections of *E. paupera* (Grube) from Chile and Juan Fernandez and *E. complanata* (Pallas) from the tropical Pacific, and concluded that the two were identical, except for size, and that *E. complanata* is typically much larger than *E. paupera*, but that they intergrade.

The collections available for study range from the Gulf of California south to Peru and west to the Galapagos Islands. Only one species, *E. complanata*, is apparently present. The largest individuals (to 350 mm long) came from Hood Island, the smallest from the Gulf of California. In the details of their structure, however, they do not differ (see also discussion under *Pareurythoë californica*).

Distribution.—Circummundane, in tropical seas. Common in intertidal zones to 10 fms. Less common in depths to 60 fms (Gulf of California). Found only rarely off southern California, in the intertidal zone, and perhaps may be considered as not occurring, typically, north of the Gulf of California, except from dredged materials.

Genus PAREURYTHOË Gustafson

Pareurythoë Gustafson (1930, p. 393) was erected to include those species that resemble *Eurythoë* Kinberg, in which the caruncle is simple, in contradistinction to those in which the caruncle consists of dorsal and ventral lobes. To this genus were assigned 4 species: *Eurythoë californica* Johnson, *E. chilensis* Kinberg, both from the eastern Pacific, *Pareurythoë japonica* Gustafson from Japan, and *P. gracilis* Gustafson from the Marshall and Gilbert islands. *Eurythoë spirocirrata* Essenberg (1917, p. 66) may belong here.

Pareurythoë californica (Johnson)

Plate 31, Figs. 5-9

Eurythoë californica Johnson, 1897, pp. 159-161, pl. 5, figs. 8-14;
Moore, 1909, p. 242; Treadwell, 1914, p. 179.

Pareurythoë californica Gustafson, 1930, pp. 307, 308, 391.

Eurythoë paupera Chamberlin, 1918, p. 173.

?*Eurythoë californica* Ehlers, 1901, p. 34.

Collections.—902-38, 904-38, 906-38, 907-38. 10 specimens.

Pareurythoë californica, originally described from southern California (Johnson, 1897, p. 159), was later made the subject of comparison with *Eurythoë paupera* (Grube) from western South America by Ehlers (1901, p. 34) and the two were concluded to be the same. Chamberlin (1918, p. 173) identified some specimens from Monterey Bay, California, as *E. paupera* and corroborated Ehlers' synonymy. These records intimate a discontinuous distribution of a single species, *E. complanata*, over widely separated areas, central California and western Chile, which our field collections have not substantiated. *E. complanata* occurs very rarely in collections from southern California. *P. californica*, however, which is typically much smaller than *E. complanata*, is common in southern California, but only rarely taken in central California.

For purposes of comparison of these two species, smaller representatives of *E. complanata* from the Gulf of California and typical *P. californica* from southern California have been used. The most striking differences are: (1) In *E. complanata* the prostomium and caruncle are compressed between the first 4 setigerous segments, the anterior margin of the ocular lobe is posterior to the first segment (pl. 31, fig. 1); in *P. californica* the ocular lobe is not compressed between the first segments, the caruncle extends posteriorly through less than 2 segments, and the anterior margin of the ocular lobe is anterior to the first segments (pl. 31, fig. 5). (2) The general appearance of *E. complanata* is spinous, of *P. californica* notably smoother. (3) In *E. complanata* the anterior margin of the prostomium is medially incised or concave (pl. 31, fig. 1); in *P. californica* it is convex (pl. 31, fig. 5). (4) The hastate acicular setae are distally triangular in *E. complanata*, subquadrate in *P. californica* (pl. 31, fig. 7). (5) All neuropodial setae of posterior parapodia are ornamented with one or a few denticulations in *P. californica* (pl. 31, fig. 8); in *E. complanata* most are smooth (pl. 31, fig. 2), some of the longer setae have a few oblique teeth (pl. 31, fig. 3). The serrated notopodial setae are coarser, relatively, in *P. californica* (pl. 31, fig. 9).

Pareurythoë californica and *P. chilensis* Kinberg (1910, pl. 12, fig. 9) are different in that *P. chilensis* has a caruncle that extends posteriorly to the third setigerous segment. According to Kinberg, the setae also are different.

Distribution.—Southern California. Common in the intertidal zones. On the under sides of rocks, in crevices; sometimes in the burrows of other chaetopods.

Genus **CHLOEIA** Savigny**Chloeia viridis** Schmarda

Chloeia viridis Schmarda, 1861, p. 144; Monro, 1928, pp. 77-78 (synonymy); 1933, pp. 9-10, fig. 4.

Chloeia euglochis Ehlers, 1887, pp. 18-24, pl. 1, figs. 1, 2, pl. 2, figs. 1-8, pl. 3, figs. 1-4.

Collections.—161-34, 177-34, 182-34, 196-34, 198-34, 202-34, 248-34, 250-34, 274-34, 277-34, 279-34, 280-34, 443-35, 481-35, 495-35, 513-36, 516-36, 536-36, 546-36, 558-36, 561-36, 563-36, 576-36, 627-37, 661-37, 662-37, 667-37, 668-37, 675-37, 677-37, 692-37, 701-37, 711-37, 725-37, 734-37, 751-37, 779-38, 814-38. About 100 specimens.

These individuals have the characteristic dorsal longitudinal stripes, if not throughout, at least in an anterior region, posterior to the prostomial caruncle. The largest measure 77 mm long and 24 mm wide (536-36, Gulf of California). They agree with the description given by Monro (1933, p. 9).

Distribution.—West Indies; Gulf of California, Mexico, south to Panama; Galapagos and Cocos islands. In depths of 5 to 150 fms.

Chloeia entypa Chamberlin

Plate 32, Figs. 14-20

Chloeia entypa Chamberlin, 1919, pp. 30-31, pl. 13, figs. 8, 9, pl. 14, figs. 1, 2; Treadwell, 1937, p. 147.

?*Chloeia pinnata* Monro, 1933, pp. 7-8, fig. 3 (not Moore, 1911; see below).

Collections.—213-34, 244-34, 431-35, 855-38, ?876-38. 6 specimens.

Number of segments 28 to 30; length 30 to 40 mm, width 6.5 to 7.5 mm without, 12 to 14 mm with, setae. Bipinnate branchiae are present from segment 4 to the end, but on at least the last 5 segments they become rapidly and progressively smaller. The dorsum has a single broad, diffuse reddish-brown, continuous stripe throughout its length. The branchial rachis has a similar pigment, densest at the base; the filaments are pale. Dorsal cirri are deep purple, ventral cirri pale.

The caruncle has about 25 folds on either side. It extends posteriorly to beyond the middle of the fourth setigerous segment. Eyes 4, the anterior pair much the larger, situated at the anterolateral base of the stout median antennal base. Posterior eyes much smaller, at the sides of the prostomial lobe (pl. 32, fig. 14). A dusky spot is present just anterior to the

bases of the frontal paired antennae. The latter are nearly in contact at their bases; they are pale for a short distance and deep purple more distally (pl. 32, fig. 14).

In general appearance and size this species resembles *Chloeia viridis*. The dorsum, however, is marked with a single broad, longitudinal stripe in place of the 3 stripes; also, the body is less firm in preservative (alcohol), the setae more translucent or yellowish.

A single small, perhaps juvenile, individual, only 8 mm long, with 18 setigerous segments, is of interest because of its origin far to the north (Anacapa Island, California) of the typical *C. entypa* Chamberlin, from western Mexico. The dorsal pigmented pattern is absent, perhaps because of its immature condition, but the more posterior notopodia have bifurcated notopodial setae that are serrated on the outer side (pl. 31, fig. 19), as is typical of *C. entypa* from the Gulf of California (pl. 31, figs. 15, 16, 20). The smooth notopodial and neuropodial setae, likewise, resemble those of larger individuals (pl. 31, figs. 17, 18). The prostomial lobe is more rectangular, the posterior eyes proportionately larger, and the caruncle with folds hardly developed. There is a diffuse dusky spot just anterior to the frontal antennae, such as Moore described for *C. pinnata* (1911, pp. 239-243, pl. 15, figs. 1-6) from southern California. In its setal structures, however, it agrees with those of *C. entypa* (see also *C. pinnata*, below).

Distribution.—Western Mexico; Ecuador; Colombia; Bahia Honda, Panama; California. In depths of 7 to 66 fms.

Chloeia pinnata Moore

Plate 31, Figs. 10-13

Chloeia pinnata Moore, 1911, pp. 239-243, pl. 15, figs. 1-6; ?Monro, 1933, pp. 7-8, fig. 3 (see above).

Collections.—914-39, 915-39. 4 specimens.

Length to 17 mm. General color pale salmon, without bands or other pigmented pattern but with minute dark specks dispersed over the dorsum. Caruncle with a dark median stripe and similar, though paler, pigment over the paired folds. Eyes dark purple, the larger anterior eyes circular, but more or less completely merging with the smaller, posterior eyes that are also circular (pl. 31, fig. 10).

Ceratophores of dorsal cirri dark purple, the anteriormost dorsal cirri pale, but from about the forty-fifth segment they are increasingly darker

purple. Ventral cirri pale. Branchiae pinnate, present from the fourth setigerous segment, to the posterior end.

Notopodia provided with bifurcated setae, some of which have minute serrations on the inner side of the main fang, the serrations directed distally (pl. 31, figs. 12, 13). These are, thus, in sharp contrast with the condition in *C. entypa* (see above). Anal cirri are elongate, cylindrical, directed posteriorly (pl. 31, fig. 11).

These specimens have been identified with *C. pinnata* Moore because of the presence of the unique, serrated notopodial setae. In this character it differs distinctly from the other two species, *C. viridis* and *C. entypa*, reported from the eastern Pacific (see above).

Distribution.—Southern California. Subintertidal, to 310 fms.

Genus NOTOPYGOS Grube

Notopygos ornata Grube

Notopygos ornata Grube, 1856, p. 53; Monro, 1933, pp. 10-11, fig. 5 (synonymy).

Lirione maculata Kinberg, 1857, p. 12.

Notopygos maculatus Chamberlin, 1919, p. 251.

Notopygos maculata Monro, 1928, pp. 78-79.

Collections.—161-34, 202-34, 247-34, 412-35, 446-35, 447-35, 473-35, 533-36, 549-36, 783-38. 17 specimens.

Distribution.—Gulf of California, Mexico, south to Gorgona Island, Colombia; Galapagos Islands. Shore, to 70 fms. In coral.

Genus PHERECARDIA Horst

Pherecardia striata (Kinberg)

Hermodice striata Kinberg, 1857, p. 13; Chamberlin, 1919a, p. 26; Augener, 1927, pp. 122-123.

Pherecardia striata Monro, 1924, pp. 72-73; 1928, p. 77; Gustafson, 1930, p. 308, fig. 11, pl. 1, fig. 7; Monro, 1933, p. 7; Okuda, 1937, pp. 265-266, figs. 4-5.

Collections.—114-33, 146-34, 247-34, 447-35, 454-35, 867-38. About 15 specimens.

Distribution.—Tropical eastern and western Pacific; Panama; Galapagos Islands. Shore, to 31 fms (Monro, 1924, p. 73).

Family Euphrosynidae

This small family is known to be present in the eastern Pacific through only one genus, *Euphrosyne* Lamarck. Ten species have heretofore been reported from the temperate and tropical Pacific. They are:

1. *Euphrosyne arctia* Johnson (1897, p. 159) from California, north to Alaska.
2. *Euphrosyne aurantiaca* Johnson (1897, p. 157) from California.
3. *Euphrosyne bicirrata* Moore (1905, p. 532) from the Gulf of Georgia, south to California.
4. *Euphrosyne calypta* Essenberg (1917, p. 63) from California.
5. *Euphrosyne dumosa* Moore (1911, p. 235) from Catalina Island, California.
6. *Euphrosyne heterobranchia* Johnson (1901, p. 402) from Washington.
7. *Euphrosyne hortensis* Moore (1905, p. 534) from Alaska, south to California.
8. *Euphrosyne kyllosetosa* Essenberg (1917, p. 68) from California.
9. *Euphrosyne limbata* Moore (1911, p. 237) from San Nicolas Island, California.
10. *Euphrosyne panamica* Chamberlin (1919, p. 33) from the Pacific side of Panama.

Nine (nos. 1-9) of these have been ascribed to California, one (no. 10) from Panama, and none from the other areas covered in this report. Among the California species, some may be found to be identical with others, when they will have become more completely known. Thus, *E. kyllosetosa* and *E. aurantiaca* bear remarkable similarities to each other (see also p. 210). Furthermore, *E. hortensis*, *E. dumosa*, and *E. aurantiaca* are not easily separable, except through characters that may prove to be variable.

KEY TO SPECIES

1. Caruncle conspicuously trilobed, with a median and a pair of long, lateral lobes (pl. 32, fig. 25) . . . *E. panamica*, p. 209
1. Caruncle without conspicuous long, lateral lobes 2
2. Branchial filaments bilobed *E. bicirrata*, p. 210
2. Branchial filaments ramosely divided (pl. 32, fig. 24) 3

- 3. Dorsal setae of one kind, none serrated or strictly bifid; branchiae 10 to 12 pairs on a parapodium, dichotomously divided 3 to 5 times 4
- 3. Dorsal setae include bifid serrated setae (pl. 32, fig. 28) and bifid spurred smooth setae; branchiae variable in number on a parapodium 5
- 4. Median parapodia with 6 main branchial trunks, each to 4-lobed; lateral dorsal cirri between second and third gill trunks, counting from the dorsum *E. calypta* Essenberg
- 4. Median parapodia with 10 to 12 main branchial trunks, each 4 or 5 times dichotomously branched; lateral dorsal cirri between gill trunks 6 and 7 or 5 and 6, counting from the dorsum *E. limbata* Moore
- 5. With 5 pairs of branchiae, the tips of the filaments flat, expanded *E. arctia* Johnson
- 5. With more than 5 pairs of branchiae, the tips of the filaments not expanded 6
- 6. Smooth notopodial setae with a short to obscure spur 7
- 6. Smooth notopodial setae with a lateral fang; median parapodia with 7 pairs of branchial trunks, the dorsal cirrus between the third and fourth trunks *E. aurantiaca*, p. 210
- 7. With 9 to 11 branchial trunks; dorsal cirri between dorsal trunks 3 and 4 or 4 and 5 *E. dumosa* Moore
- 7. With 11 to 13 pairs of branchial trunks, dorsal cirri between trunks 4 and 5 to 7 and 8 *E. hortensis* Moore
- 7. With 10 pairs of branchial trunks, the dorsal cirri between trunks 4 and 5 *E. heterobranchia* Johnson

Euphrosyne panamica Chamberlin

Plate 32, Figs. 24-26

Euphrosyne panamica Chamberlin, 1919a, pp. 33-34, pl. 12, figs. 7, 8, pl. 13, figs. 1-7.

Collections.—412-35, 436-35, 446-35. 3 specimens.

Length 11 to 23 mm; number of setigerous segments 35 to 40. The caruncle (pl. 32, fig. 25) is trilobed, the lateral processes somewhat shorter than indicated by Chamberlin; the median antenna extends along the median lobe nearly to the middle of it.

The branchiae are richly branched and terminate distally in inflated lobes. A typical one from the sixteenth parapodium is shown in plate 32, fig. 24. *E. armadilloides* Ehlers (1901, p. 37) has similar foliose bran-

chia. In the latter, however, the long spine of the bifurcated seta is said to have a subterminal tooth (Ehlers, 1901, pl. 1, fig. 8). The ringed setae have broad, bifurcated ends and a slender stalk (pl. 32, fig. 26).

Distribution.—Panama, Pacific side; Gorgona Island, Colombia. Shore.

Euphrosyne aurantiaca Johnson

Plate 32, Figs. 27-29

Euphrosyne aurantiaca Johnson, 1897, pp. 157-158, pl. 5, figs. 1-4 (not Treadwell, 1914, p. 178; see below).

Euphrosyne kylosetosa Essenberg, 1917, pp. 68-69, pl. 5, figs. 24-31.

Collections.—439-36, 874-38, 906-38. 4 specimens.

The caruncle consists of a larger ventral lobe upon which the dorsal lobe is imposed and to which it is completely fused. The branchiae are more or less regularly dichotomously branched. The ventral bifurcated setae (pl. 32, fig. 29) are similar to, but longer than, the dorsal setae (pl. 32, fig. 27). All of the simple bifurcated setae are finely punctate below the fork. Some of the longer ventral setae have a few elevations, in a single series, near the base of the longer spur (pl. 32, fig. 29). The ringed dorsal setae (pl. 32, fig. 28) are broader than the simple setae, but almost transparent, fewer, and less easily seen.

In a single specimen from Portuguese Bend, California (906-38), the branchiae are unusually conspicuous, but the dorsal setae are fewer, perhaps lost. The setae and branchiae are typical of the species.

The cotype of *E. kylosetosa* Essenberg (1917, p. 68) in the collections of the University of California has been compared with paratypes of *E. aurantiaca* Johnson. No significant differences have been observed. Their descriptions, also, agree reasonably well. *E. aurantiaca* Treadwell (1914, p. 178) was made the type of *E. calypta* Essenberg (1917, p. 63).

Distribution.—California; Anacapa Island, off California; Piñas Bay, Panama. Shore, to 45 fms.

Euphrosyne bicirrata Moore

Plate 32, Figs. 21-23

Euphrosyne bicirrata Moore, 1905, pp. 532-534, pl. 34, figs. 8-12; 1908, p. 339; 1911, p. 234; Berkeley, 1923, p. 211.

Length 6 mm; width without, 1.4 mm, with setae, 2 mm; number of segments 23. The caruncle is a simple ridge with dorsal and ventral lobes; the dorsal lobe extends posteriorly to the anterior third of the fifth segment, the ventral lobe to the posterior third of the fourth segment. It

is widest in the region of the eyes and tapers gradually posteriorly. The 2 eyes of a side are fused to form a single pair of elongate spots at the sides of the anterior end of the ventral lobe. Branchial filaments are bifid.

E. bicirrata resembles *E. notialis* Ehlers (1901, p. 38) from the Straits of Magellan in having bifid branchial filaments. In the latter, however, the distal end of the serrated setae is proportionately much longer than in *E. bicirrata* (pl. 32, figs. 22, 23). Also, in the latter the bifurcated dorsal setae have a noticeable thickening on the main fang (pl. 32, fig. 21).

Distribution.—Alaska, south to southern California, in 18 to 369 fms; Gulf of California, in 45 fms.

Family Hesionidae

KEY TO GENERA

1. With 8 pairs of tentacular cirri at the anterior end 2
1. With 6 pairs of tentacular cirri at the anterior end
. PODARKE, p. 211
2. Prostomium with a pair of antennae inserted at the frontal margin; proboscis without jaw pieces . . . HESIONE, p. 211
2. Prostomium with a pair of antennae at the frontal margin and a median antenna inserted on the posterior half; proboscis with jaw pieces LEOCRATES, p. 212

Genus PODARKE Ehlers

Podarke pugettensis Johnson

Podarke pugettensis Johnson, 1901, pp. 397-398, pl. 3, figs. 23-25; Moore, 1908, p. 341; 1909, p. 243; Gravier, 1909, pp. 622-624, pl. 16, figs. 2-7; 1910, pp. 97-98, pl. 5, figs. 2-7; Treadwell, 1914, p. 177; Berkeley, 1923, p. 211; Okuda, 1936, pp. 413-415, fig. 4.

Collection.—902-38. One specimen.

Distribution.—North and east Pacific, south to Peru (Gravier); Japan. Littoral.

Genus HESIONE Savigny

Body short, somewhat depressed, truncate at both ends. Consists of few, indistinctly articulated segments. Prostomium with 4 eyes disposed in a rectangle, and a pair of anterior antennae. Proboscis eversible, cylin-

drical, without chitinous jaws. First 4 segments more or less fused, provided with 8 pairs of tentacular cirri that project obliquely forward. Parapodial and anal cirri tentacular, the dorsal ones long, filamentous. Parapodia seemingly uniramous, the notopodium represented only by a long, dorsal cirrus, the neuropodium well developed and with acicula and composite falcigerous setae. Anal ring with 2 long, tentacular cirri.

Hesione intertexta Grube

Plate 33, Figs. 30-31

Hesione intertexta Grube, 1878, pp. 102-103, pl. 6, fig. 5; Monro, 1926, pp. 311-314; 1928, p. 79; 1931, pp. 9-10, fig. 4; 1933, p. 26.

Hesione panamena Chamberlin, 1919, pp. 188-190, pl. 22, figs. 9-10; Treadwell, 1937, p. 149.

Collections.—59-33, 134-34, 148-34, 167-34, 213-34, 289-34, 310-35, 336-35, 503-36, 576-36, 585-36, 627-37, 688-37, 719-37, 745-37, 811-38. Numerous specimens.

Total length 40-50 mm, the largest individual from Consag Rock, in the northern end of the Gulf of California. Most individuals retain the reticulated, fulvous pattern on the dorsum of the anterior segments, but in some there are almost none. There are 16 parapodial segments. Aciculae are black, setae pale. The 8 pairs of tentacular cirri are long, directed anteriorly. Prostomial antennae are minute, not easily distinguished.

Parapodia have 2 elongated lobes, preacicular and postacicular, at their dorsodistal edge (pl. 33, fig. 30). Composite neuropodial setae have a guard which approaches the apical tooth (pl. 33, fig. 31). The significance of the relation of guard to apical or subapical tooth has been carefully studied by Monro (1926, p. 311). The specimens here examined were surprisingly uniform with respect to this character.

Distribution.—Philippine Islands; South Sea islands; China; Galapagos and Cocos islands; Panama; western Mexico; Gulf of California, north to Consag Rock. Subintertidal, to 25 fms.

Genus LEOCRATES Kinberg

Plate 33, Figs. 32-35

Leocrates chinensis Kinberg, 1866, p. 244; 1910, p. 57, pl. 23, fig. 7; Ehlers, 1901, pp. 83-84, pl. 11, figs. 10-15; Horst, 1924, pp. 193-194; Monro, 1926, p. 313; 1931, p. 12.

?*Leocrates claparedii* Fauvel, 1919, p. 371 (synonymy); 1923, pp. 237-238, fig. 88; 1930, p. 12; 1932, p. 61; 1933, pp. 44-45; Day, 1934, p. 33; Okuda, 1937, pp. 270-271, figs. 11, 12.

Collections.—305-34, 633-37. 2 specimens.

Lengths 22 and 15 mm. There are 18 body segments, all but the first (cirriferous) have acicular lobes; the second to the second last, or 16 segments, are setigerous.

Notopodial setae are first present from the fifth setigerous segment. They are slender, lanceolate, delicately serrated along one edge. The neuropodial setae are composite, falcigerous (pl. 33, figs. 34, 35); often 1 or 2 ventralmost retain the pointed, protecting sheath (pl. 33, fig. 34). They range from shorter, superiormost, to longer, inferiormost (pl. 33, fig. 35).

The prostomium is slightly broader than long, the 4 reddish-brown eyes are subequal. The paired anterior antennae are long, cirriform, longer than the prostomium. Between them the large facial tubercle is inserted. This is proportionately larger or smaller, depending on whether the proboscis is retracted (pl. 33, fig. 32) or everted (pl. 33, fig. 33). A similar effect is observable in the proportionate sizes of the palpi. The median prostomial antenna is inserted on the posterior half of the prostomium, in a shallow, median sulcus. The jaw piece is pale yellow.

Ehlers (1901, p. 83) identified specimens from Juan Fernandez (off southwestern South America) as *L. chinensis* Kinberg on comparison with Kinberg's type which came from near Hong Kong. In this connection it is noteworthy that Okuda (1937, p. 270) reported *L. claparedii* from Japan. The specimens from western Mexico agree reasonably well with Okuda's good account save that the posterior eyes are as large as the anterior ones, and the prostomium is proportionately less broad in ours. Also, the median prostomial antenna is inserted posterior to the eyes (pl. 33, fig. 33); in Okuda's illustration it is shown between anterior and posterior eyes, about as shown for *L. claparedii* by Fauvel (1923, fig. 88).

Distribution.—Tropical Pacific; Indo-Pacific; off western South America; western Mexico; Gulf of California; ?Mediterranean. Sub-intertidal, to 18 fms.

Family **Stauronereidae**

Genus **STAUONEREIS** Verrill

Includes *Staurocephalus* Grube, *Anisoceras* Oersted, *Dorvillea* Parfitt, and *Prionognathus* Keferstein.

Stauronereis cerasina (Ehlers)

Plate 34, Figs. 38-41

Staurocephalus cerasinus Ehlers, 1901, pp. 263-264.*Stauronereis cerasina* Ehlers, 1901, pp. 147-149, pl. 19, figs. 11-17, pl. 20, figs. 1-3.*Collections.*—498-36, 662-37, 683-37, 728-37. 8 specimens.

Length 15 to 20 mm. Dorsal cirrophores are long, provided with slender acicula, and the cirrostyles greatly surpass the neuropodia in length (pl. 34, figs. 38, 39). Supraacicular setae are slender, lanceolate, serrated along the cutting edge (pl. 34, fig. 41). Subacicular falcigerous setae have a well-developed subterminal tooth, and the shaft is pilose distally save for the smooth blunt tip (pl. 34, fig. 40). The prostomium has 4 dark, reddish-brown eyes, the anterior pair being much the larger.

Distribution.—Juan Fernandez, off southwestern South America; Gulf of California, Mexico. Sublittoral, to 15 fms.

Stauronereis gracilis Hartman*Stauronereis gracilis* Hartman, 1938, pp. 100-101, figs. 36-38.*Collection.*—905-38. 3 specimens.*Distribution.*—California. Intertidal.Family **Nereidae**

Separation of the Nereidae into genera has long been based, in part, on the disposition of the paragnaths on the proboscis rings, as also the shape and structure of these parts (Kinberg, 1866, p. 170; Grube, 1873, p. 56; and others). Thus, presence or absence of conical paragnaths on one or both rings has separated such genera as *Nereis*, *Ceratonereis*, *Eunereis*, and *Leptonereis*. Admittedly, however, the number of paragnaths on both rings may vary from abundance to rarity between different species, and even differs within certain limits in the individuals in a species. This character, therefore, is to be observed with caution and, if possible, correlated with the nature of other parts.

The genera that are sometimes included in *Nereis* Linnaeus include *Neanthes* Kinberg, *Ceratonereis* Kinberg, *Eunereis* Malmgren, and *Nereis* s. str. If the species of these genera and those of *Leptonereis* Kinberg were to be arranged in a continuous series based on the number of conical paragnaths on the proboscis, the limitation of genera would disappear. If,

on the other hand, these species were first grouped into those with, and those without, falcigerous notopodial setae, a more definite criterion for separation might be attained. This would, however, necessitate a redistribution of species within a genus, and a reexamination of many type specimens in which this character has not been made known.

Numerous species of Nereidae have been described from the tropical and subtropical eastern Pacific. Some of these have not been redescribed since first named, and in some instances identity is hardly possible. Such are the following: *Nereis castelnaui*, *N. rupta*, and *N. pacifica*, described by Quatrefages (1865, pp. 522-524) from Peru. The name of the last was later changed to *N. peruviana* Ehlers (1868, p. 460, footnote) without a redescription. *Nereis chlorodes*, *N. delicatula*, and *N. gayi* by Blanchard (1849, pp. 22-23), as also *Mastigonereis cuprea* and *Nereis maculata* Schmarda (1861, pp. 112, 102), were described from Chile. Kinberg (1866, p. 173) described *Heteronereis grubei* from Valparaiso and *Nereis tredecimdentata* from the Galapagos Islands (1866, p. 169). *Heteronereis pannosa* from Callao, Peru, and *Nereis rigida* from Punta Arenas were named by Grube (1856, pp. 167-172). If the types of these species were to be reexamined, they might be found to be conspecific with subsequently described species.

KEY TO GENERA

1. Peristomium produced so as to project forward, collarlike, under the prostomium; commensal with pagurids CHEILONEREIS, p. 219
1. Peristomium not so produced 2
2. Proboscis without paragnaths; notopodia without falcigerous setae LEPTONEREIS, p. 216
2. Proboscis with few to many paragnaths; notopodia with or without falcigerous setae 3
3. Paragnaths present only on maxillary ring; notopodia with or without falcigerous setae . . . CERATONEREIS, p. 217
3. Paragnaths present on both oral and maxillary rings; notopodia with or without falcigerous setae 4
4. Paragnaths on both rings are conical 5
4. Paragnaths are conical except those on area VI (or also on area V), which are transverse; notopodia without falcigerous setae PERINEREIS, p. 229
4. Paragnaths on the maxillary ring are pectinate 6

5. Posterior notopodia with homogomph falcigerous setae; notopodial preacicular lobe not elongate . . . NEREIS, p. 220
5. Posterior notopodia without falcigerous setae; some notopodial preacicular lobes elongate, especially in a posterior region . . . NEANTHES, p. 219
6. Proboscoidal areas I, II, and V with paragnaths; area VI with transverse plaques; homogomph falcigerous setae absent . . . PSEUDONEREIS, p. 231
6. Proboscoidal areas I, II, and V lack paragnaths, area VI with points; some notopodia with falcigerous setae . . . 7
7. Posterior notopodia with simple, stout, falcigerous setae . . . UNCINEREIS, p. 231
7. Posterior notopodia with composite, stout, falcigerous setae (pl. 38, fig. 83) . . . PLATYNEREIS, p. 229

Genus LEPTONEREIS Kinberg*

Proboscis lacks chitinous paragnaths. Jaws pale, translucent, with oblique teeth on the cutting edge. Parapodia with heterogomph and homogomph spinigerous setae; neuropodia with heterogomph falcigerous setae. Notopodia without homogomph falcigerous setae. Epitokous forms with 2 or 3 body regions, an anterior and sometimes a posterior region with atokal setae, and a median region with natatory setae.

Kinberg (1866, pp. 178-179) erected 3 genera, *Leptonereis*, *Nicon*, and *Nicomedes*. Most of the species therein named have since been included under *Leptonereis*. *Nicon* and *Nicomedes*, in part at least, are epitokous stages of *Leptonereis* species. The following were described from the eastern Pacific: *Nicon loxechini* and *N. virgini* from the Straits of Magellan, *Leptonereis laevis* from Guayaquil, and *Nicon tahitanus* from Hawaii. Unfortunately, most of these are too incompletely known to permit identity.

The collections at hand include numerous specimens of pelagic epitokous stages. They differ greatly among themselves as to number of anterior, atokal segments, and comparative sizes. Until more is known about the sedentary stages from which these are derived, it has been deemed best to postpone the description of them until additional material is available. The one described below has been based on material which permits a more complete diagnosis.

*The types of *Leptonereis*, *Nicon* and *Nicomedes* have been reexamined, necessitating important changes in these genera. They are to appear in a subsequent revision of some Swedish types.

Leptonereis glauca Claparède, **moniloceras**, new subspecies

Plate 34, Figs. 42-46

Nereis (Leptonereis) glauca Claparède, 1870, pp. 454-455, pl. 7, fig. 3.*Collections.*—900-38 (Holotype), 728-37. 4 specimens.

Length of epitokous female is 16 mm; number of setigerous segments 62, including 22 anterior segments with normal setae, 23 median segments with natatory setae, and 17 posterior segments with normal setae. Prostomial antennae and peristomial cirri are annulated distally (pl. 34, fig. 43). The latter consist of a basal ceratophore and about 6 articles, these of approximately equal lengths in the anterior ventralmost cirrus, but in the others the basal articles are greatly elongated. The proboscis lacks paragnaths. Jaws are pale yellow, translucent, with 4 or 5 short, oblique teeth.

Parapodia are long, directed laterally; the dorsal cirri extend distally to the ends of the parapodial lobes in anterior parapodia (pl. 34, fig. 45), but they are surpassed in epitokous parapodia by the dorsal lobe (pl. 34, fig. 46); posteriorly they are proportionately longer (pl. 34, fig. 42). The ventral cirri are shorter and do not reach to the tip of the ventral lobes.

Parapodia are provided with spinigerous setae in notopodia and neuropodia, and heterogomph falcigerous setae (pl. 34, fig. 44) in neuropodia. Acicula are pale yellow. The dorsum is ornamented with a pigmented pattern across the anterior half of the prostomium, and broken transverse lines across the middle of the segments (pl. 34, fig. 43). Parapodial lobes in middle and posterior regions have dark, glandular patches (pl. 34, figs. 46, 42), most conspicuous in the posterior half of the body.

Leptonereis glauca moniloceras differs from the type in that the peristomial cirri are notably longer, and annulated; natatory setae in the female are first present from the twenty-second segment instead of the sixteenth; the pigmentation of posterior parapodia is more extensive and pronounced.

Holotype.—AHF no. 23.

Distribution.—Off Catalina Island, California, in brachiopod colony, in 40 fms; San Esteban Island, Gulf of California. Shore.

Genus **CERATONEREIS** Kinberg

Proboscis with conical paragnaths on the oral ring, but without paragnaths on the maxillary ring. Notopodia provided with spinigerous setae, or also falcigerous setae (pl. 36, fig. 56). Neuropodia with spinigerous and heterogomph falcigerous setae.

KEY TO SPECIES

- Notopodia with falcigerous setae (pl. 36, fig. 56); palpi greatly elongate, cylindrical, the two widely separated at the base; dorsal cirri attenuate, extending far beyond the tips of the setae *C. tentaculata*, p. 218
- Notopodia without falcigerous setae; palpi not elongate; dorsal cirri only moderately long (pl. 36, fig. 57) *C. costae*, p. 218

***Ceratonereis tentaculata* Kinberg**

Plate 35, Fig. 47

Ceratonereis tentaculata Kinberg, 1866, p. 170; Augener, 1913, pp. 168-170 (synonymy); Monro, 1933, p. 45.

Ceratonereis singularis Treadwell, 1929, pp. 1-3, figs. 1-8.

??*Nereis tentaculata* Treadwell, 1914, p. 190.

Collections.—12-33, 114-33, 197-34, 210-34, 277-34, 498-36, 525-36, 549-36, 607-37, 633-37, 634-37, 638-37, 639-37, 662-37, 683-37, 688-37, D-104. Numerous specimens.

Falcigerous setae (pl. 35, fig. 47) are present, a few in a fascicle, from about the twentieth parapodium. The articulation is slightly heterogomph. Neuropodial falcigerous setae have a similar appendage, but the articulation is clearly heterogomph.

The description of *Ceratonereis singularis* Treadwell (1929, p. 1) from Carmen and San José islands, Lower California, agrees well with that for *C. tentaculata* Kinberg. *Nereis tentaculata* Kinberg was reported from Pacific Grove, California (Treadwell, 1914, p. 190). It may be questioned, however, whether the range of the tropical *C. tentaculata* actually extends so far north in the Pacific.

Distribution.—Tropical and subtropical eastern and western Pacific; Australia; West Indies. Shore, to 40 fms.

***Ceratonereis costae* (Grube)**

Plate 35, Fig. 48

Nereis costae Grube, 1840, pp. 74-75.

Nereis (Ceratonereis) costae Fauvel, 1923, pp. 349-350, fig. 136 (synonymy).

Collections.—13-33, 209-34, 702-37. 4 specimens.

Two small epitokous individuals from La Libertad (13-33). A female has 17 anterior parapodial segments, the first 5 with modified dorsal cirri; there are 46 epitokal segments; total length is 14 mm. A male, with

14 anterior segments of which 7 have modified dorsal cirri, has about 50 epitokal segments and is nearly as long. Color is lacking except for the reddish-brown eyes and a dark transverse band across the dorsum of the second parapodial segment.

Jaws are translucent, dark amber in color, with 5 teeth on the cutting edge. Paragnaths are present as follows: area I with none; area II with a crescent of 2 or 3 rows of paragnaths; area III with a broad patch; area IV with a triangular patch; areas V to VIII with none.

The postepitokal parapodia have middle and ventral lobes about equally long, but the dorsal lobe is longer (pl. 35, fig. 48). Homogomph falcigerous setae are absent. The specimen from 702-37 is an anterior fragment of 17 setigerous segments and a regenerating posterior end. The anterior third of each segment is crossed by a dark band dorsally.

These specimens are referred to *C. costae* largely because the posterior parapodia have a preacicular notopodial lobe (pl. 35, fig. 48).

Distribution.—Mediterranean; Indo-Pacific; Madagascar; Philippines; Ecuador; Gulf of California. Intertidal, to 18 fms.

Genus NEANTHES Kinberg

Neanthes differs from *Nereis* mainly in that the preacicular notopodial lobe elongates, and notopodia have spinigerous setae only. Conical paragnaths are usually present on all areas.

It is of interest that no representatives of this genus are present in the collections of the Hancock Pacific Expeditions. Two species (see below) are in the collections of The University of Southern California. These have heretofore been reported from California (Hartman, 1938, p. 80). Both are fairly common in littoral zones. They are separable as follows:

Posterior notopodial lobe elongate, the dorsal cirrus inserted near its distal end; often estuarine . . . *N. succinea* (Frey and Leuckart)

Posterior notopodial lobe broadly foliaceous, the dorsal cirrus inserted near the middle of its dorsal convex edge; marine . . .
 *N. brandti* (Malmgren)

Genus CHEILONEREIS Benham

Cheilonereis cyclurus (Harrington)

Nereis cyclurus Harrington, 1897, pp. 219-220, pl. 16, figs. 1-3, pl. 17, figs. 1-7, pl. 18, figs. 1-5; Johnson, 1901, p. 400, pl. 4, fig. 46, pl. 5, figs. 48-52; Moore, 1908, pp. 343-344; 1911, p. 246; Ramsay,

1914, pp. 237-240, fig. 1 (synonymy); Treadwell, 1914, p. 190; Berkeley, 1924, p. 292.

Collection.—889-38. One specimen.

No data are available as to its association. Previous records report it commensal with pagurids.

Distribution.—Northeast Pacific, south to southern California; Japan. Subintertidal, to 37 fms.

Genus NEREIS Linnaeus

Differs from *Neanthes* Kinberg in that the notopodial preacicular lobes do not elongate; posterior notopodia are provided with falcigerous setae.

KEY TO SPECIES

- | | |
|---|-----------------------------------|
| 1. Area V of proboscis with numerous paragnaths | |
| | <i>N. pseudoneanthes</i> , p. 221 |
| 1. Area V of proboscis with few or no paragnaths | 2 |
| 2. Areas VII and VIII of proboscis with few (5 or fewer) paragnaths, disposed in a single row | 3 |
| 2. Areas VII and VIII with more numerous paragnaths | 4 |
| 3. Parapodial lobes with extensive dark areas, the posterior dorsal lobe exceeds the middle lobe in size (pl. 33, fig. 37); pelagic stages with 23 to 27 anterior atokal segments | <i>N. riisei</i> , p. 221 |
| 3. Parapodial lobes without dark areas, the posterior dorsal lobe not surpassing the middle lobe; pelagic stages with 32 to 38 anterior, atokal segments | <i>N. paucignatha</i> , p. 222 |
| 4. Posterior parapodia with falcigerous setae (pl. 37, fig. 65) resembling those in <i>Platynereis</i> | <i>N. pseudonereis</i> , p. 223 |
| 4. Posterior parapodia without such falcigerous setae | 5 |
| 5. Posterior dorsal parapodial lobes not longer than middle lobes (pl. 35, fig. 53) | 6 |
| 5. Posterior dorsal parapodial lobes extend distally beyond the middle lobes (pl. 37, fig. 69) | 8 |
| 6. Area V of proboscis with a single large paragnath that exceeds all others in size; prostomium and anterior segments crossed by broken color bands | <i>N. latescens</i> , p. 224 |
| 6. Area V of proboscis with no such large paragnath; pigmentation pattern otherwise, if present | 7 |
| 7. Posterior dorsal lobes dark, trapezoidal, broader than middle lobes (pl. 33, fig. 36) | <i>N. neonigripes</i> , p. 225 |

7. Posterior dorsal lobes pale, triangular, smaller than middle lobes (pl. 35, fig. 52) *N. pelagica*, p. 225
8. Area III of proboscis lacks paragnaths *N. flavipes*, p. 226
8. Area III of proboscis provided with paragnaths 9
9. Posterior dorsal lobes elongate, rectangular (pl. 35, fig. 57); area VIII with larger paragnaths and an oval area of smaller paragnaths on the maxillary side *N. mediator*, p. 227
9. Posterior dorsal lobes with dorsal edge convex; area VIII of proboscis otherwise 10
10. Dorsal lobe ventral to the dorsal cirrus is produced in posterior parapodia (pl. 37, fig. 70) *N. veleronis*, p. 228
10. Dorsal lobe ventral to the dorsal cirrus is not produced in posterior parapodia *N. callaona*, p. 227

Nereis pseudoneanthes Hartman

Nereis pseudoneanthes Hartman, 1936, pp. 470-471, fig. 47.

Collections.—260-34, 288-34. 13 specimens.

Distribution.—Southern California; Gulf of California; Tangola-Tangola, Mexico. Intertidal.

Nereis riisei Grube

Plate 33, Fig. 37

Nereis riisei Grube, 1856, pp. 162-163; Monro, 1933, pp. 43-44 (synonymy); Hartman, 1938, p. 7 (synonymy).

Nereis ambiguus Treadwell, 1937, pp. 149-151, pl. 2, figs. 19-24.

Collections.—11-33, 12-33, 13-33, 99-33, 120-33, 132-34, 148-34, 445-35, 495-36, 498-36, 633-37, 643-37, 788-38. Numerous individuals.

All have deeply pigmented parapodial lobes. The dorsal lobe of posterior parapodia is elongate triangular, inflated (pl. 33, fig. 37). Setae are pale, acicula dark. Homogomph falcigerous setae have a delicately toothed appendage.

The peristomium is about one and one-half times as long as the first parapodial segment. It and the anterior border of the prostomium are dark. There are also paired patches of color on the atokous segments, proximal to the parapodia. The peristomial cirri are slender, and appear irregularly reticulated, the longest extending posteriorly to about the fifth setigerous segment, the shortest about to the distal end of the pal-podes.

Epitokous individuals from Ecuador (11-33 and 13-33) include some females that are less than half as large as some of the males. In the former there are 17 anterior setigerous segments, of which 5 have enlarged dorsal cirri. In the male there are 15 (16 in one) anterior setigerous segments, of which 7 have enlarged dorsal cirri.

A specimen from 148-34 has the following proboscoidal formula: area I with a single, larger cone; area II with about 12 cones in 2 elongate rows; area III with 10 to 12 in a broad patch; area IV with a crescent of about 12 cones; area V with none; area VI with 4 or 5 tall cones; areas VII and VIII with a single row of few (4 or 5) widely spaced cones. Paragnaths of the maxillary ring are much the larger, and much more numerous. Those of the oral ring are few, small. Jaws have about 8 well-developed oblique teeth on the cutting edge.

Nereis ambiguus Treadwell (1937, p. 149) from Clarion Island has the dark parapodial lobes characteristic of *N. riisei*, and homogomph falcigerous setae as in this species. Its description agrees reasonably well with that for *N. riisei*.

***Nereis paucignatha*, new species**

Plate 36, Figs. 58-62

Collection.—21-33. 2 male epitokous individuals.

Length 37 mm; number of segments 108, including 38 anterior parapodia and 70 provided with natatory appendages. The prostomium is broadly rectangular, the 4 eyes large though well separated, each with a minute pale lens (pl. 36, fig. 59). Prostomial antennae extend distally beyond the palpi but are somewhat wrinkled. The peristomial cirri are long, cirriform, and wrinkled terminally as in the prostomial antennae.

The proboscoidal formula is as follows: area I with none; area II with 3 to 5 cones in a row; area III with 1 to 4 cones in a transverse row; area IV with about 9 cones in 2 rows; area V with none; area VI with only 2 cones; area VII with 6 cones in 2 rows, widely spaced, those on the maxillary side the largest; area VIII with none. Jaws have about 7 slightly oblique teeth on the cutting edge, and a distal curved fang.

Dorsal cirri of the first 7 parapodia are thickened, elongated. Parapodia anterior to the natatory region have slender lobes, extending distally not quite so far as the dorsal cirri. The dorsal and ventral cirri are similar to each other except that the dorsal are somewhat the longer (pl. 36, fig. 60). Notopodial setae include homogomph falcigerous setae, the appendage long, serrated along one edge (pl. 36, fig. 58). Neuropodial

setae include heterogomph and homogomph spinigerous, and heterogomph falcigerous, the appendage slender, finely serrulated (pl. 36, fig. 62). Natatory parapodia are present from about the thirty-ninth parapodium. The dorsal cirrus is crenulate, with 10 or fewer lobes (pl. 36, fig. 61).

Nereis trifasciata Grube (1878, p. 74), like *N. paucignatha*, has few paragnaths. Augener (1922, p. 177) enhanced the original description and attributed homogomph falcigerous setae to it. In it, however, the epitokous individual has few anterior segments, the male with only 14, the female with 17; in *N. paucignatha* there are about 38 anterior segments.

Nicon eugeniae Kinberg (see Ehlers, 1897, p. 67) has numerous, 26 to 34, anterior segments in epitokous stages. According to Ehlers, however, the prostomium is longer than wide, the peristomial cirri are notably shorter, and there are no homogomph falcigerous setae. *Nereis goajirana* Augener (1933, p. 253) from the West Indies lacks homogomph falcigerous setae, as does also *Nereis kerguelensis* McIntosh (1885, p. 225) from the Kerguelen Islands.

Holotype.—AHF no. 26.

Distribution.—Salango Island, Ecuador. Pelagic.

***Nereis pseudonereis*, new species**

Plate 36, Figs. 63-64; Plate 37, Figs. 65-66

Collections.—326-35 (Holotype), 364-35, 374-35, 384-35. 8 specimens.

Body long, slender; length of 68 setigerous segments (complete) is 20 mm, its width about 1 mm. Parapodia proportionately long, their length over half the width of the body where best developed. Dorsum pigmented with a pattern of broken transverse stripes, a similar pigment at the sides of the prostomium and on the proximal sides of the palpi. Prostomium with a broad rectangular basal portion with 4 dark subequal eyes, and a distal slender portion less than half as wide as the basal portion (pl. 36, fig. 64). Prostomial antennae inserted proximal to one another, their distal ends surpassed by the palpi. Palpi broad, flat, divergent distally, terminate in an elongate article. Peristomial cirri slender, the longest extends posteriorly to the sixth or seventh setigerous segment, when directed posteriorly.

Parapodia are pale except for the free ends of the dorsal, middle, and ventral lobes which are dark (pl. 36, fig. 63). They are conspicuous throughout, the lobes moderately long in the anterior half or about the

first 30 segments, the lobes proportionately longer more posteriorly, with a gradual diminution of the parapodial bases. The dorsal cirri, however, continue to surpass the dorsal lobes throughout (pl. 36, fig. 63).

The paragnaths of the proboscis are disposed as follows: area I with 2 cones in tandem; area II with 12 to 15 well-separated cones in 2 or 3 irregular rows, the cones slightly smaller than those of area I; area III with about 100 well-separated small, sharp-pointed cones; area IV with a crescent of 20 to 30 sharp-pointed, small cones. Area V with none; area VI with 4 tall pointed cones; areas VII and VIII with 2 rows of larger pointed cones ventrally and about 3 rows laterally. The paragnaths of these two areas exceed the others in size. Jaws are dark amber, translucent, with about 6 obliquely truncate teeth.

There are spinigerous setae in notopodia and neuropodia, homogomph falcigerous setae (pl. 37, fig. 65) in notopodia from about the twenty-eighth segment. These are unique in that the appendage is much like that present in species of the genus *Platynereis*, the terminal end rounded, with a small boss. Neuropodia are provided also with falcigerous heterogomph setae (pl. 37, fig. 66). Anal cirri are long, slender, about as long as the last 9 segments.

Nereis pseudonereis has affinities with *N. falsa* Quatrefages (see Fauvel, 1923, p. 337), in which similar notopodial falcigerous setae are present. In the latter, however, the posterior parapodial lobes are not like those in *N. pseudonereis* (pl. 37, fig. 72), and the transverse dorsal striped pattern is absent.

Holotype.—AHF no. 27.

Distribution.—Galapagos Islands; Peru. In 3 to 15 fms.

***Nereis latescens* Chamberlin**

Plate 35, Figs. 53-56

Nereis latescens Chamberlin, 1919, pp. 10-11.

Collections.—885-38, 904-38. Numerous specimens from southern California.

Length to 40 mm; number of segments about 80. Paragnaths of the maxillary ring are typically smaller than those of the oral ring. Area I has 1 or 2 tiny teeth in tandem; area II has a triangular patch of 8 to 12 small teeth; area III has a broad band of small paragnaths that reach laterally to area IV but are finer than those of the latter; area IV has a crescent-shaped area of 3 irregular rows; area V has a single, exceptionally large tooth; area VI has 4 larger cones in a diamond arrangement;

area VII has 3 to 5 rows of larger paragnaths, more or less continuous with area VIII but diminishing to only a single row at the sides.

The prostomium is dark brown or rust colored, and a similar pigment forms broken bands across the segments dorsally. Parapodia have diverging middle and dorsal lobes (pl. 35, figs. 53, 56), and a postneuroacicular lobe which is somewhat flaring, but shorter than the acicular lobe itself. Notopodial (pl. 35, fig. 55) and neuropodial (pl. 35, fig. 54) falcigerous setae have appendages about equally long. The former have a few serrations or are quite smooth. The neuropodial falcigerous appendages are delicately spinose along the cutting edge.

Distribution.—California. Intertidal, to 14 fms. Marine and estuarine.

***Nereis neonigripes* Hartman**

Plate 33, Fig. 36

Nereis neonigripes Hartman, 1936, pp. 471-472, fig. 48.

Collection.—901-38. One individual.

Length of 94 segments (not quite complete) is 50 mm. The prostomial lobe is longer than wide; the palpi extend distally slightly beyond the prostomial antennae. The posterior parapodial lobes are dark over their free portions; these lobes are flat, compressed (pl. 33, fig. 36).

Paragnaths are weakly developed, area I without cones; area II with about 8 to 10 cones in 2 sparse rows; area III with about 6 in a transverse row; area IV with 7 or 8 cones in 2 rows; area V with none; area VI with 3 or 4 cones in a transverse row; areas VII and VIII with about 8 larger cones in a row on the maxillary side and 1 or 2 irregular rows of smaller cones on the oral side. Homogomph falcigerous notopodial setae are first present from about the twenty-seventh segment.

Distribution.—Northeast Pacific, south to southern California. Intertidal.

? *Nereis pelagica* Linnaeus

Plate 35, Fig. 52

Nereis pelagica Ehlers, 1868, pp. 511-517, pl. 20, figs. 11-20; Chamberlin, 1919, p. 213; Berkeley, 1924, p. 291; Monroe, 1928, pp. 80-81.

Collections.—283-34, 675-37, 874-38, 897-38, 900-38, D-104. 29 specimens.

Length to 30 mm; number of segments about 65; pale except for dark eyes and acicula. The proboscoidal formula is approximately as follows: area I with 2 or 3 cones in tandem; area II with an elongate patch

of 12 to 15 cones; area III with a broad patch of 10 to 12 smaller cones; area IV with 18 to 24 tall cones disposed in a triangular patch, some of which are heaviest on the maxillary ring, but along the inner side of IV the cones are tiny; area V with none; area VI with 4 or 5 cones in a diamond or 2 irregular rows; areas VII and VIII with a row of larger cones on the maxillary side and 2 or 3 rows of tiny cones on the oral side. In one collection (900-38) some of the paragnaths are inserted on chitinous plaques, much as shown by Fauvel (1914, pl. 14, fig. 6) for individuals of *N. zonata* Malmgren.

Parapodia are typical except that in posterior parapodia the dorsal lobe is notably reduced (pl. 35, fig. 52). Homogomph falcigerous notopodial setae are present from about the twentieth segment. The appendage is slightly curved but lacks teeth. Heterogomph falcigerous neuropodial setae have a short, curved appendage, the basal part about as long as the hooked end, with obscure spinelets along the cutting edge.

In some specimens the peristomial ring is constricted, collarlike, much narrower than the first podal segment, but about twice as long as the latter.

These specimens are referred to *N. pelagica* Linnaeus with some doubt because of the character of the posterior dorsal lobe (pl. 36, fig. 61).

Distribution.—Widely reported from littoral areas in all seas.

***Nereis flavipes* Ehlers**

Plate 35, Figs. 49-51

Nereis flavipes Ehlers, 1868, pp. 549-552, pl. 21, figs. 26-30.

Collection.—728-37. One individual.

A single, complete individual, 40 mm long, has 71 setigerous segments. It agrees reasonably well with the description by Ehlers (1868, p. 549) for the type from the Adriatic Sea. Posterior notopodial lobes are enlarged; the lobe ventral to the attachment of the dorsal cirrus is produced as a triangular elongation (pl. 35, fig. 51). Homogomph falcigerous notopodial setae are present from the nineteenth segment. They have a smooth, falcate appendage (pl. 35, fig. 49). Neuropodial falcigerous setae have a short appendage, with delicate spinelets (pl. 35, fig. 50).

The proboscoidal formula is as follows: area I with 2 unequal cones in tandem; area II with a double row of small cones; area III with none; area IV with about 15 cones in a crescentic patch; area V with none; area VI with 6 or 7 taller cones in 2 rows; areas VII and VIII with very many

small cones, including an irregular row of larger cones on the maxillary side and about 3 or 4 rows of smaller cones on the oral side.

Distribution.—Mediterranean; San Esteban Island, Gulf of California. Shore.

Nereis mediator Chamberlin

Plate 35, Fig. 57

Nereis mediator Chamberlin, 1918, p. 174; 1919, p. 11.

Collections.—902-38, 904-38, 906-38, 913-39. 6 individuals.

Length to 60 mm; number of segments about 80. Prostomium slightly longer than wide, its antennae not reaching distally as far as the palpi. Peristomium about twice as long as the second segment, smooth dorsally and ventrally, usually forming a tumid lower lip, which, when the proboscis is retracted, is often produced forward beneath the palpi.

Paragnaths are pale to dark brown. Area I has 2 or 3 teeth in tandem; area II has about 16 small cones in a crescent; area III has 3 or 4 transverse rows of tiny paragnaths forming an oval patch; area IV has a curved patch of paragnaths larger than those of area III; area V has 3 or 4 tiny cones or sometimes none; area VI has 4 large, tall cones disposed in a diamond arrangement; area VII has a few small cones in a patch on the maxillary side and several rows of mostly larger paragnaths; area VIII has larger paragnaths, in a broad band, continuous with those of area VII.

Posterior parapodia have elongate, rectangular lobes, the dorsal and ventral sides approximately parallel (pl. 35, fig. 57). Homogomph fal-cigerous setae are present in fascicles of 1 to 3 in posterior parapodia, usually unaccompanied by other setae.

Distribution.—Northeast Pacific, south to southern California. Intertidal.

Nereis callaona (Grube)

Nereilepas callaona Grube, 1856, pp. 165-166.

Nereis callaona Ehlers, 1901, pp. 108-109, pl. 13, figs. 13-20 (synonymy).

Nereis heterocirrata Treadwell, 1931, pp. 1-2, fig. 1; Hartman, 1938, p. 14.

Nereis eucaipitis Hartman, 1936, pp. 468-469, fig. 46.

Collection.—127-33. 5 specimens.

Fauvel (in litt.) has suggested the synonymy given above. I have been able to compare descriptions and collections only from southern California and the Gulf of California. Grube's original specimens came from Peru. A comparison with South American collections would be desirable.

Distribution.—Eastern and western Pacific. Littoral.

Nereis veleronis, new species

Plate 37, Figs. 67-73

Collections.—373-35, 384-35 (Holotype), 385-35, 395-35. 12 specimens.

Length of 38 anterior segments is 21 mm; another nearly complete, with 65 segments, is 26 mm long (393-35). The prostomium is broadly rectangular, the 4 dark eyes subequal, well separated from one another. Prostomial antennae are nearly half as long as the prostomium, and separated at their bases (pl. 37, fig. 67).

Peristomial cirri are short, the longest extending distally to the third parapodial segment. The peristomial segment is about twice as long as the first parapodial segment (pl. 37, fig. 67).

Paragnaths are tall, conical, though small. Area I has 2 cones in tandem, which exceed in size the others on the maxillary ring; area II has about 15 to 20 in 2 or 3 irregular rows; area III has 30 to 50 smaller points in a broad transverse patch, approximately in 3 rows, those on the maxillary side the smallest; area IV has about 20 to 25 in a triangular patch; area V has none; area VI has 5 to 9 smaller, subequal, in 2 rows; areas VII and VIII have a continuous band of numerous cones, forming 1 or 2 rows at the sides, but 4 to 6 rows ventrally.

Parapodia in anterior segments (pl. 37, fig. 68) resemble those of *Nereis zonata* Malmgren. In the more posterior parapodia, the dorsal lobes are conspicuously larger, the dorsal lobe elongate, the dorsal cirrus carried distally (pl. 37, figs. 70, 69). In posteriormost parapodia the middle and ventral lobes are far surpassed by the dorsal lobe (pl. 37, fig. 69). Homogomph falcigerous notopodial setae are present from about the thirtieth segment; their appendages are short, smooth (pl. 37, fig. 73). Heterogomph falcigerous neuropodial setae have an appendage that is finely serrated (pl. 37, fig. 72).

Collection 384-35 includes a male epitokous specimen 16 mm long. It consists of 14 anterior segments in which the first 7 segments have modified dorsal cirri and 39 posterior, epitokous segments. A typical parapodium is shown in plate 37, figure 71.

Nereis veleronis differs from *N. zonata* Malmgren (1868, p. 164) in that the posterior dorsal lobes are notably different, the dorsal edge strongly convex, the lateral edge drawn out in a triangular lobe.

Holotype.—AHF no. 28.

Distribution.—Peru. In 5-16 fms.

Genus **PERINEREIS** Kinberg
Perinereis monterea (Chamberlin)

Nereis (Neanthes) monterea Chamberlin, 1918, pp. 174-175.

Nereis monterea Berkeley, 1935, pp. 769-770.

Perinereis monterea Hartman, 1936, p. 32.

Nereis spinifera Treadwell, 1929, pp. 5-6, figs. 15-20.

Collections.—Numerous specimens, probably collected from southern California, but lacking more complete data, in the collections of The University of Southern California.

Length to 65 mm; width to 4.5 mm; number of segments 100 to 130. Color in life pale with reddish-brown pattern, a quadrate patch on the middle dorsum of each segment, darkest and most extensive on the anterior segments and becoming paler posteriorly.

Paragnaths are dark brown. Area I has a single, stout conical cone; area II has about 6 cones in 3 transverse rows; area III has numerous points in 4 transverse series; area IV has numerous cones in an elongated patch; area V has a single, stout tooth; area VI has one transverse piece; areas VII and VIII form a continuous band of several rows of larger paragnaths.

Nereis spinifera Treadwell (1929, p. 5) from Puget Sound is probably the same. Its description agrees reasonably well with that for *P. monterea* (Chamberlin).

Genus **PLATYNEREIS** Kinberg
Platynereis polyscalma Chamberlin

Plate 38, Figs. 76-83

Platynereis polyscalma Chamberlin, 1919, pp. 219-226, pl. 30, figs. 5-8, pl. 31, figs. 1-10, pl. 32, figs. 1, 2; Horst, 1924, pp. 186-187; Monro, 1931, p. 18; Fauvel, 1931, pp. 23-25, pl. 3, figs. 1-6; Fauvel, 1932, pp. 114-116; Hartman, 1938, p. 15.

Platynereis integer Treadwell, 1920, pp. 595-597, figs. 1-4.

Collections.—8-33, 11-33, 13-33, 495-36, 503-36, 622-37, 639-37. Numerous specimens.

The atokous stage has heretofore been unknown. It is, therefore, of interest to find it in the collections. The following description is based on individuals from stations 495-36, 503-36, 639-37.

Length to 50 mm; number of segments 70 to 100. Pale (preserved) except for black eyes. These have white opaque areas (pl. 38, fig. 76) as typical of the epitokous stage. Parapodia, particularly in the posterior re-

gion, have opaque areas on the lobes and dorsal and ventral bases. Setae are pale yellow, acicula black.

The prostomium is broad, depressed, about as wide as long, the 4 eyes large, wide apart, lenticulated (pl. 38, fig. 76). The prostomial antennae exceed the palpi in length. The latter are directed ventrally. Peristomial cirri are long, slender, smooth, the longest extending distally to about the eleventh parapodium.

The proboscis lacks paragnaths on areas I, II, and V; area III has 7 or 8, more or less separated, small patches of pectinae; area IV has a crescentic area of pectinae in 3 or 4 rows; area VI has a short row of pectinae, and sometimes also a much shorter row on the maxillary side; areas VII and VIII have a single transverse series of 5 patches, the 3 ventralmost the longer, the 2 lateral areas short. All paragnaths save those on area IV are weakly developed. Jaws are thin, pale, amber colored except for brown tips; they have 5 teeth on the cutting edge.

Parapodia are well developed throughout, the free lobes increasing in length from anterior to posterior regions. The acicular lobes are distally acute (pl. 38, figs. 77-80). Dorsal, middle, and ventral lobes are elongate, the dorsal lobe extending distally beyond the others. Dorsal cirri are longest in anterior segments; they extend distally far beyond the setal tips. More posteriorly they are shorter, but in atokous individuals they extend beyond the setae.

Setae include those typical of the genus. Homogomph falcigerous notopodial setae (pl. 38, figs. 81-83) are present from about the fourteenth segment. The appendage is terminally smooth except for a minute boss. Throughout, they are accompanied by spinigerous setae, but the latter decrease in number posteriorly. Neuropodia are provided with spinigerous and falcigerous setae. The appendage of the latter is short, recurved (pl. 38, fig. 82), the lateral spinelets fine, hairlike.

Included in the dredged collections from Cape San Lucas (495-36) are several approaching epitoke (nereilepas stage). A male consists of about 90 segments, is 20 mm long, and has the first 7 parapodia modified. After the thirteenth segment, the epitokal lappets are gradually developed, but there is no abrupt transformation of the parapodia. A typical parapodium in this area is shown in plate 38, figure 79. Similarly, a female from the same collection consists of 85 segments, is 23 mm long, resembles the male, but the dorsal cirri are smooth (pl. 38, fig. 77).

Numerous pelagic epitokous individuals from Ecuador have been identified with this species, as redescribed by Monro and Fauvel (see sy-

nonymy above). In the female, there are 22 atokous parapodia; segments 23 and 24 are transitional, the first 5 having modified dorsal cirri. The posteriormost parapodia have the characteristic ribbed setae as described by Chamberlin; the prostomium is greatly elongated. It was at first thought that the atokous specimens from the Gulf of California belonged to another species because of the differences in the parapodia. Since, however, the proboscoidal armature (see above) agrees well with that described by Fauvel (1932, p. 115) and the homogomph falcigerous setae (pl. 38, fig. 83) are much like those in epitokous individuals (pl. 38, fig. 81) in which ribbed setae are present, it is assumed that all belong to a single, widely represented species.

Distribution.—Tropical Pacific; Indo-Pacific. Pelagic, to 15 fms.

Genus **PSEUDONEREIS** Kinberg

Pseudonereis gallapagensis Kinberg

Pseudonereis gallapagensis Kinberg, 1866, p. 174; Gravier, 1909, pp. 629-633, pl. 16, figs. 15-20; 1910, pp. 102-104, pl. 5, fig. 11, pl. 6, figs. 15, 17-20; Kinberg, 1910, p. 52, pl. 20, fig. 3; Fauvel, 1932, p. 111.

Collections.—11-33, 16-33, 19-33, 154-34, 260-34, 380-34, 837-38. 12 individuals.

The paragnaths are disposed as follows: area I has 1 to 3 cones in tandem; area II has 3 rows of pectinae in close, trim series; area III has 4 rows of pectinae in close series, the row on the maxillary side the shortest; area IV has 5 rows of pectinae arranged in a V-shaped mass; area V has a single stout cone; area VI has a single broad transverse plaque; areas VII and VIII have a single row of paragnaths, those on VIII alternating cones and elongate pieces. Epitokous individuals have 14 anterior parapodia, the fifteenth and sixteenth being transitional.

Distribution.—Eastern Pacific, from western Mexico south to the Straits of Magellan; Indo-Pacific. Intertidal.

Genus **UNCINEREIS** Chamberlin

Uncinereis agassizi (Ehlers)

Nereis agassizi Ehlers, 1868, pp. 542-546, pl. 23, fig. 1.

Platynereis dumerilii var. *agassizi* Monro, 1933, pp. 44-45 (synonymy).

Uncinereis agassizi Hartman, 1936, p. 32 (synonymy).

Collections.—12-33, 66-33, 148-34, 169-34, 177-34, 182-34, 193-34, 234-34, 283-34, 364-35, 391-35, 395-35, 495-36, 530-36, 532-36, 549-36,

563-36, ?567-37, 610-37, 683-37, 706-37, 843-38, 845-38, 881-38, 882-38, 888-38, 898-38, 900-38, D-93, D-104. Numerous specimens.

Simple, uncinigerous setae are generally present from the tenth to twelfth segment.

Distribution.—Eastern Pacific from British Columbia south to Peru; Australia (Augener); Japan. Intertidal, to 900 fms.

Family Nephthyidae

The Nephthyidae are represented in the collections by 12 species, or subspecies, 3 of which are thought to be new, and most of the others are known only through one or a few records. Only 2 are typically intertidal. It is to be expected, however, that this number will be considerably enhanced once our knowledge of sandy beaches is increased. All of the others were taken from dredgings in shallow waters, regions that have been little explored. These areas may be expected to yield rich returns when intensively studied.

Genus NEPHTHYS Cuvier

KEY TO SPECIES

1. Proboscis without papillae; recurved cirri involute; dorsal and ventral cirri long, conspicuous, surpassing the other parapodial lobes in length (pl. 39, fig. 84) *N. inermis*, p. 234
1. Proboscis provided distally with well-developed papillae; recurved cirri involute or curved outward; dorsal and ventral cirri not surpassing the other lobes in length 2
2. Recurved cirri involute (pl. 40, fig. 94); lyre setae (pl. 40, fig. 95) present or absent 3
2. Recurved cirri directed outward (pl. 39, fig. 87); lyre setae absent 5
3. Postsetal lobes serrated, divided in 4 lobes in posterior parapodia (pl. 40, fig. 94); lyre setae absent . *N. lobophora*, p. 234
3. Postsetal lobes not serrated; lyre setae present or absent 4
4. Postsetal lobes expanded, foliaceous (pl. 39, fig. 90); notopodial acicular lobe prolonged in a slender process; dorsal edge of neuropodia with slender lobe . *N. macroura peruana*, p. 236
4. Postsetal lobes short, inconspicuous in posterior parapodia; notopodial acicular lobe not so prolonged; dorsal edge of neuropodia with a slender, digitate lobe . . *N. dibranchis*, p. 237

- 5. Dorsal surface overlain, at sides, by closely imbricated, scalelike expansions of the dorsal edge of the notopodia; notopodial and neuropodial postsetal lobes greatly elongated, foliaceous (pl. 41, fig. 98) *N. squamosa*, p. 237
- 5. Dorsal surface without imbricated lappets; parapodial lobes otherwise 6
- 6. Recurved cirri present from tenth or eleventh setigerous segment, absent from posterior fifth of body; proboscis proximally covered with minute, conical, chitinous prickles *N. punctata*, p. 239
- 6. Recurved cirri present from third to fifth setigerous segment, continued through all or most of body length 7
- 7. Prostomium with a pair of black eye spots on its posterior half (pl. 41, fig. 100); recurved cirri present from third setigerous segment *N. magellanica*, p. 238
- 7. Prostomium without black eye spots; recurved cirri present from third setigerous segment or beyond 8
- 8. Neuropodial postsetal lobes greatly elongated, expanded (pl. 39, fig. 87) in median and posterior parapodia, considerably surpassing the corresponding notopodial lobe *N. assimilis*, p. 239
- 8. Neuropodial lobes otherwise 9
- 9. Acicular lobes conical; the aciculum projects from the distal-most part of the lobe (pl. 42, figs. 106, 107) *N. panamensis*, p. 239
- 9. Acicular lobes, at least in notopodia and usually also in neuropodia, are bilobed; the tip of the aciculum projects from the lobe at its deepest part (pl. 42, fig. 110) 10
- 10. Proboscis with a median dorsal papilla; postacicular setae stiff, the spinose area extending nearly across the width where best developed; pigmented pattern of prostomium and first few segments extensive 11
- 10. Proboscis without a median dorsal papilla; postacicular setae soft, silky, flowing; pigmented pattern of prostomium limited *N. californiensis*, p. 240
- 11. Recurved cirri first present from fourth segment; posterior neuroacicular lobes bilobed; recurved cirri slender, taper distally *N. caecoides*, p. 240
- 11. Recurved cirri first present from third segment; posterior neuroacicular lobes conical (pl. 42, fig. 112); recurved cirri thick, blunt (pl. 42, figs. 110, 112) *N. caecoides ferruginea*, p. 241

Nephtys inermis Ehlers

Plate 39, Figs. 84-86; Plate 40, Fig. 95

Nephtys (Aglaothamus) inermis Ehlers, 1887, pp. 125-128, pl. 38, figs. 1-6.

Nephtys inermis Fauvel, 1923, pp. 375-376, fig. 147; 1933, pp. 47-50, fig. 3.

Collections.—633-37, 863-38. 3 specimens.

The longest (863-38) is 73 mm long for 85 segments; a posterior piece is lacking. Two smaller individuals (633-37) measure about 30 mm for 81 segments. The prostomium has 4 dark spots disposed in a rectangle near the posterior border. The proboscis is unarmed.

Recurved cirri are involute, first present from the fourth setigerous segment, though at first minute. By the tenth segment they are much larger and nearly fill the interramal space. At the base, on the outer side, there is an elongate papilla, directed laterally (pl. 39, fig. 85). Dorsal and ventral cirri are long, conspicuous throughout (pl. 39, figs. 84-86). Acicular lobes are pointed, conical (pl. 39, fig. 85); the acicula are pale amber in color and project from the lobes. Notopodial postsetal lobes are transversely elongate, their greatest width attained in the postmedian region (pl. 39, figs. 84, 86). Lyre setae (pl. 40, fig. 95) are as heavy as, or slightly heavier than, the postacicular setae.

Distribution.—Off southern Florida; Mediterranean Sea; Gulf of Suez; Gulf of California; Bahia Honda, Panama. Subintertidal, to 53 fms. This marks the first record from the eastern Pacific.

Nephtys lobophora, new species

Plate 40, Figs. 91-94

Collections.—826-38, 832-38 (Holotype). 2 specimens.

Two incomplete individuals; the larger (holotype) consists of 92 setigerous segments and is 115 mm long. The smaller is in 2 pieces, 59 and 20 segments, with lengths 55 and 18 mm, respectively, but incomplete posteriorly. The larger has the proboscis partly protruded. General color is iridescent gray. The prostomium is only slightly darker, the setae yellowish, acicula amber colored.

The prostomium is hexagonal, the nuchal organs conspicuous, elongate on the postectal margin. No pigmented pattern or eyes are visible on the preserved material. The proboscis has 22 rows of papillae on its distal part, but no median papilla. On its proximal part there are numerous,

low, soft conical papillae, adnate at their bases, but the part immediately bounding the mouth is smooth.

Recurved cirri are involute, present from the third setigerous segment to the end of the pieces. Where best developed, they circumscribe almost 2 complete whorls (pl. 40, fig. 93).

Parapodia are conspicuously lobed throughout. They have large, foliaceous lobes, posterior to the longer setae, on the sides proximal to the interramal space. Also, there are shorter, broad lamellae on the dorsal face of the notopodium and ventral to the foliaceous neuropodial lobe. In anterior segments (about the first 20) these lobes are entire. More posteriorly they are serrated (pl. 40, figs. 91, 94). The neuropodial postsetal lamellae are simple, entire in the first 25 to 30 parapodia (pl. 40, fig. 93); then for about 10 to 12 segments they are distally serrated, consisting of 2 or 3 lobes, the ventralmost broadest but shortest. From about the fortieth to forty-fifth segment the postsetal lamellae consist of 4 lobes, and this arrangement continues to the end.

The notopodial postsetal lobes are similarly divided; the first serrations occur at about the twenty-second segment and are increasingly deeper and more regular until 4 lobes are present (pl. 40, fig. 94) from about the fortieth segment. Ventral cirri are clavate and terminate in a slender point.

Setae are of 2 kinds: preacicular barred, and heavier postacicular spinose setae. These have a pilose base and a slightly serrated distal portion (pl. 40, fig. 92). The tip is smooth, pointed.

Nephtys lobophora was at first thought to be the same as *N. polyphara* Schmarda (1861, p. 89) from Chile. Both have conspicuous parapodial lobes, including serrated postsetal lamellae, and the postacicular setae are pilose basally, with only weak serrations distally. In *N. polyphara* the recurved cirri are probably shown in an unnatural position, dorsal to the notopodium instead of in the interramal space. Discounting this seeming difference, there are others which indicate that the two are distinct from each other. *N. polyphara* has 12 rows of papillae on the proboscis, *N. lobophora* has 22 rows. In *N. polyphara* the parapodial "obere Ast trägt eine lange fadenförmige, stark eingerollte, cirrenartige Kieme [recurved cirrus turned unnaturally upward?]. Unter ihr steht ein kleines rundliches Blatt" [the dorsalmost postsetal lamella?]. In *N. lobophora* the smaller, rounded lobe is dorsal to the recurved cirrus and to the foliose lobe (pl. 41, fig. 102). In *N. polyphara* the postsetal lamella has "drei zungenförmige Lappen." In *N. lobophora* there are 4 lobes (pl. 40, fig.

94). The color notations by Schmarda were made, presumably, on the living individual, hence cannot be used for comparison. In so far as I am aware, *Nephtys polyphara* has not been reexamined or recorded since first described.

Holotype.—AHF no. 30.

Distribution.—Peru. In 10-30 fms.

***Nephtys macroura* Schmarda, *peruana*, new subspecies**

Plate 39, Figs. 89-90; Plate 40, Figs. 96-97

Nephtys macroura Schmarda, 1861, p. 91, figs. B, K, b.

Nephtys macrura Gravier, 1911, pp. 98-99; Fauvel, 1916, pp. 436-438, pl. 8, figs. 1-3.

Collections.—823-38 (Holotype), 833-38. 2 specimens.

Two anterior fragments consist of 39 and 25 segments and are 21 and 12 mm long, respectively. They are pale except for a dusky elongate, triangular patch on the prostomium covering most of its dorsum, and pale yellow setae. The prostomial lobe is trapezoidal, widest anteriorly.

Recurved cirri are involute, the first present from the third setigerous segment, small, about as large as its dorsal cirrus, which is proximal at its base. At the fourth segment they are much larger, and by the tenth segment come to occupy most of the interramal space.

The postsetal lamellae are conspicuous, as in the type species, from about the sixth segment, but reach their maximal development posterior to the widest part of the body. The acicular lobes of both notopodia and neuropodia are elongate beyond the point of emergence of the acicula. In the notopodium the lobe is ventral to the aciculum; in the neuropodium it is dorsal (pl. 39, fig. 89). These lobes are present in at least the first 39 segments, but after the thirty-fifth they diminish in size (pl. 39, fig. 90).

Acicula are pale. Setae are yellow, numerous, long, silky, flowing. They include preacicular barred (pl. 40, fig. 97) and finer, though longer, postacicular spinose setae. In the latter the spiny area is sparse and narrow (pl. 40, fig. 96). No lyre setae have been observed.

N. macroura peruana differs from the type species most conspicuously in that the acicular lobe is produced distally in a slender, digitate process that extends far beyond the tip of the aciculum (pl. 39, fig. 89).

Holotype.—AHF no. 31.

Distribution.—Peru. In 10-40 fms.

Nephtys dibranchis Grube

Nephtys dibranchis Grube, 1878, p. 536; McIntosh, 1885, pp. 161-162, pl. 26, figs. 8, 9, pl. 27, fig. 5; Augener, 1923, pp. 15-16; Fauvel, 1932, pp. 117-118; Monro, 1933, pp. 56-57, fig. 24; Hartman, 1938, p. 146.

Nephtys mirasetis Hoagland, 1920, p. 610, pl. 48, figs. 5-8.

Collections.—185-34, 187-34, 213-34, 250-34, 421-36, 436-36, 492-36, 513-36, 667-37, 668-37, 770-38. Numerous specimens.

The prostomium has 2, more or less clearly distinguishable, minute, black eye spots on its posterior half. The proboscis has 22 rows of papillae and is finely punctate proximally.

Recurved cirri are involute, present from the fourth or fifth setigerous segment. The lyre setae are much finer than either the barred preacicular or the serrulated postacicular setae.

Distribution.—Eastern and western southern Pacific; Galapagos Islands; Panama (Pacific); western Mexico; Gulf of California. Intertidal, to 60 fms.

Nephtys squamosa Ehlers

Plate 41, Figs. 98-99

Nephtys squamosa Ehlers, 1887, pp. 128-131, pl. 37, figs. 7-10; Augener, 1918, pp. 159-160, pl. 3, fig. 67; Monro, 1933, pp. 52-53.

Collections.—546-36, 632-37, 669-37, 735-37, 856-38, 900-38. 10 specimens.

The proboscis has 22 rows of terminal papillae; it is smooth proximally. Recurved cirri, present from the fourth setigerous segment, are long, curving outward, though perhaps small or absent from at least some posteriormost segments. The prostomium is subtrapezoidal, broadly rounded anteriorly and somewhat longer than wide, hence differing from that described by Ehlers (1887, pl. 37, fig. 7).

The dorsal lamellae are broad, foliaceous, lying flat over the dorsum, recalling the elytra of a polynoid. Both dorsal and ventral postsetal lamellae are elongate, foliaceous. The dorsal cirrus, also, is longer than typical of this species. Neuropodia have a slender, digitate lobe at their dorsal edge (pl. 41, fig. 98) not shown by Ehlers (1887, pl. 37, fig. 8), but believed to be referred to in the text (1887, p. 130), "auf seiner [unteren Ast] vorderen Fläche steht am oberen Rande eine kleine schmale und dünne Lippe, welche nicht weiter als die Spitze hinausragt."

Postacicular setae are lanceolate, with cutting edge minutely serrated. Barred setae are slenderer than the lanceolate setae. Lyre setae are absent.

Augener (1918, p. 159) added to the original description, based on collections from west Africa and a reexamination of the types. This study reveals the presence of postlamellar lobes that are notably shorter than those in specimens from the Pacific (pl. 41, figs. 98, 99). Also, the bars of the preacicular setae are proportionately broader. These differences, however, do not seem sufficiently basic to warrant the erection of another name.

Monro (1933, p. 140) questionably referred some fragmentary specimens to this species. These agree with the individuals herein noted in having a "long, leaf-shaped, pointed, ventral posterior lamella." Whether or not the dorsal lamella is also long is not made known.

Distribution.—Off Florida; west Africa; Gorgona Island, Ecuador; Colombia; Gulf of California; Catalina Island, California. Subintertidal, to 118 fms.

Nephtys magellanica Augener

Plate 41, Figs. 100-103

Nephtys magellanica Augener, 1912, pp. 208-211, figs. 27, 28.

Nephtys magellanica Hartman, 1938, pp. 146-147, fig. 62 (synonymy).

Collections.—259-34, 279-34, 285-34, 438-35, 456-35, 530-35, 533-36, 549-36, 577-36, 620-37, 628-37, 662-37, 675-37, 677-37, 692-37, 696-37, 702-37, 705-37, 706-37, 725-37, 732-37, 734-37, 747-37, 833-38, ?843-38, 845-38, 870-38, Acc. 600. Numerous specimens.

The prostomium is broad, spatulate, with a pair of deeply embedded, black eye spots. Some individuals have a dark blotch near the middle (pl. 42, fig. 109). The nuchal organs, conspicuous when everted, lie proximal to the first notopodial lobe (pl. 41, fig. 100). The proboscis has a median dorsal papilla and 22 rows distally. It is smooth proximally.

Recurved cirri are digitiform, present from the third setigerous segment. Setae are long, silky, flowing, including three kinds. The preacicular setae are barred (pl. 41, fig. 101). Postacicular setae are of two kinds. They include numerous long, serrulated setae, with transverse rows of spines limited more or less to the broadest part (pl. 41, figs. 103, 104), and paler, lanceolate, finely denticulated setae (pl. 41, fig. 102) present posterior to the twenty-fifth segment. There is, in addition, a smaller, shorter, postacicular seta, intergrading with these two, in which the exposed bases are finely pilose.

Specimens from Independencia Bay, Peru (833-38), differ somewhat from the others in that the postsetal lamellae are longer and distally more acute.

Distribution.—Straits of Magellan, north to southern California; Gulf of California. Subintertidal, to 75 fms.

Nephtys punctata Hartman

Nephtys punctata Hartman, 1938, pp. 155-156, fig. 67.

Collection.—?Mission Bay, California. One specimen.

Distribution.—Alaska; California.

Nephtys assimilis Oersted

Plate 39, Figs. 87-88

Nephtys assimilis Oersted, 1843, p. 33, figs. 93, 100.

Nephtys assimilis Moore, 1908, p. 342; Treadwell, 1914, p. 193;

Berkeley, 1924, p. 290.

Collections.—495-36, 770-38. 3 specimens.

Long, slender; length of 53 anterior segments is 32 mm. The prostomium is rectangular, longer than broad, thin, spatulate. The first segment is prolonged, its parapodia directed anteriorly. A recurved cirrus is present from the fourth setigerous segment, the first already fairly large, exceeding in size its respective dorsal cirrus.

The anterior neuropodial lobes have a bluntly digitate, superior lobe (pl. 39, fig. 88), which decreases in size after the fifteenth segment and is absent from about the twenty-fifth segment. The notopodial acicular lobe is bifid, the 2 lobes so formed each smoothly rounded, thus differing from the condition in *N. hombergii* Savigny, where the 2 lobes diverge from one another. The postsetal lamellae of the neuropodia are greatly elongate, thin, foliaceous (pl. 39, fig. 87). Setae include long, spinose in the postacicular fascicles, and barred setae in the preacicular fascicle. Lyre setae are absent.

Distribution.—Northeast Atlantic; northeast Pacific. Subintertidal, to 15 fms.

Nephtys panamensis Monro

Plate 41, Fig. 105; Plate 42, Figs. 106-109

Nephtys panamensis Monro, 1928, pp. 81-82, figs. 3-4.

Collections.—451-35, 499-36. 2 specimens.

Two anterior fragments, 55 and 37 segments, measure 29 and 16 mm, respectively. Both are brownish yellow, with a pattern of broad, transverse dark bands dorsally, a similar pigment distributed on the prostomium (pl. 41, fig. 105). On the ventral side there is a dark longitudinal stripe in the neural area, darkest in the anterior, inflated part. The proboscis (dissected) has 22 rows of papillae distally. Proximally it is smooth.

Recurved cirri are directed outward. They are cirriform, present from the third setigerous segment to the end of the pieces, and do not fill the interramal space. Where best developed, at about the twenty-fifth segment, they extend distally to the neuropodium, but by the fiftieth segment (pl. 42, fig. 106) they are much smaller.

Parapodia are well developed, the rami of the first few segments approximately as far apart as those of the fifty-fifth segment, but those of the latter are longer. The postsetal lobes are conspicuous, broad, foliaceous, extending distally nearly as far as the shorter postacicular setae. They are slightly concave so as to partly envelop the fan-shaped postsetal fascicles. The preacicular lobes are broadly oval, but comparatively short. They conceal most of the acicular lobes except for their free ends where the acicula emerge.

Setae are burnt amber in color. The preacicular fascicle contains 15 to 20 slender, barred setae which are curved at their distal ends, the barred area limited to the distal half of the free part of the seta. The postacicular fascicle includes numerous, longer, serrated setae (pl. 42, fig. 109), coarser than the barred setae, and also fewer, almost smooth, though similar setae in the dorsalmost and ventralmost parts of the notopodial and neuropodial fascicles. No lyre setae have been observed.

Nephtys panamensis has heretofore been known only through a single, incomplete, macerated individual (Monro, 1928, p. 81). The individuals described above are believed to be the same because of the similarity in the parapodial lobes of the median segments, the presence of a dark neural stripe, and the dark markings on the prostomium.

Distribution.—Panama; Gulf of California. Intertidal, to 50 fms.

Nephtys californiensis Hartman

Nephtys californiensis Hartman, 1938, pp. 150-151, fig. 64.

Collections.—284-34, 871-38, 906-38, Acc. 587, Acc. 590. 12 specimens.

Distribution.—California; Gulf of California. Intertidal, to 30 fms.

Nephtys caecoides Hartman

Nephtys caecoides Hartman, 1938, pp. 148-149, fig. 63.

Collections.—616-37, 876-38, 885-38, 886-38, 887-38, 888-38, 889-38, 891-38, 892-38, 893-38, 894-38, 896-38, 897-38, 903-38, 905-38, 908-38, 909-38, 913-39. Numerous specimens.

Distribution.—California; Gulf of California. Intertidal, to 90 fms.

***Nephtys caecoides* Hartman, *ferruginea*, new subspecies**

Plate 42, Figs. 110-114; Plate 43, Fig. 115

Nephtys caecoides Hartman, 1938, pp. 148-149, fig. 63.*Collections.*—379-35, 492-36, 820-38, 823-38, 834-38 (Holotype), 876-38. 24 specimens.

No individuals are complete. Length of 46 anterior segments is 30 mm; the greatest width, at segments 10 to 13, is 3 mm. The anterior end, through about the first 15 segments, is distended, barrellike, deeply pigmented with a rust-colored pattern consisting of transverse bars across the middle of the segments and longitudinal stripes at the sides (pl. 43, fig. 115). The proboscis has 22 rows of papillae and a median dorsal papilla. It is smooth proximally.

Recurved cirri are directed laterally. They are first present from the third setigerous segment and continue posteriorly to the ends of the pieces. They are broad, flattened, but not foliaceous, and terminate in blunt tips (pl. 42, figs. 110-112). The dorsal cirri are slender and notably longer than is typical for *N. caecoides* Hartman (1938, p. 147).

The acicular lobes are bilobed in anterior segments (pl. 42, figs. 110, 111). Neuroacicular lobes in posterior segments are conical (pl. 42, fig. 112). Setae resemble those in *N. caecoides*. The barred setae are slenderer (pl. 42, fig. 114) than the spinose setae, their thickness less than half that of the latter. The spinose setae (pl. 42, fig. 113) have extensive serrulations, extending nearly across the width on the outer side, where best developed. Lyre setae are absent.

N. caecoides ferruginea differs from the type species in that the recurved cirri are first present from the third segment instead of the fourth; the posterior neuroacicular lobes are conical; the anterior region, through about the first 15 segments, is distended; the dorsal pigmented pattern is more extensive.

Holotype.—AHF no. 29.

Distribution.—Peru, north to Anacapa Island, southern California. In 10 to 45 fms.

Family Glyceridae**KEY TO GENERA**

Parapodium with a single aciculum and only composite setae, with one presetal and one postsetal lobe; branchiae absent; support of jaw (aileron) a simple, rodlike structure
 HEMIPODUS, p. 242

Parapodium with 2 acicula, simple and composite setae, with one or 2 presetal and postsetal lobes; branchiae absent or present; aileron generally broadest at the base and terminating distally in one or 2 unequal, slender bars . . . GLYCERA, p. 244

Genus *HEMIPODUS* Quatrefages

This genus was erected for *Hemipodus roseus* Quatrefages (1865, pp. 194-196) from Chile. Earlier, *Glycera simplex* Grube (1856, pp. 177-178) had been described from Chile and Peru. This species belongs to the same genus. Schmarda (1861, pp. 93-94) briefly described *Glycera diodon*, *G. macrorhiza*, *G. micrognatha*, and *G. monodon*, all from Chile. Ehlers (1901, p. 155) considered all of the above-named to belong to one species, for which he retained the name, *H. simplex* (Grube). Arwidsson (1899, pp. 28-30), however, considered *H. roseus* Quatrefages and *H. patagonicus* Kinberg (1866, p. 245) distinct from each other. Ehlers based his conclusions on a study of the postsetal parapodial lobes. He indicated intergrading variations in these structures, from a simple, rounded to a bilobed condition. A comparative structure of other parts might have led to different conclusions. A reexamination of either the types or collections from the type localities might prove interesting.

Later, *Hemipodus borealis* Johnson (1901, p. 411) was described from the northeast Pacific, and *H. californiensis* Hartman (1938, p. 93) from central California. These species are separable as indicated in the key below. *H. yenourensis* Izuka (1912, p. 250) is known only from Japan.

Several other species, described in the genus *Hemipodus*, have been transferred to other genera or their affinities are not clearly understood. *H. magellanica* McIntosh (1885, p. 349) was later made the type of the genus *Glycerella* Arwidsson (1899, p. 25). *Hemipodus septentrionalis* Roule (1896, p. 452) was shown to be a *Glycera* (Arwidsson, 1899, p. 28). *Hemipodus mexicanus* Chamberlin (1919, p. 349) from the Gulf of California should perhaps be referred to the genus *Glycera*, since it has both simple and composite setae; also, the parapodium has 2 long, presetal ligulae, as characteristic of the genus *Glycera*. *Hemipodus canadensis* Treadwell (1937, p. 348) from Nova Scotia, Canada, is shown with simple setae (1937, fig. 2) in addition to composite setae, a character which eliminates it from the genus *Hemipodus*. It is not made known whether the aileron of the proboscidian armature is a bar, such as characterizes *Hemipodus*, or a flaring chitinous piece, as known for *Glycera*. The parapodia of the latter, however, have 2 acicula, and the composite setae are not so clearly, if at all, heterogomph.

KEY TO SPECIES

1. Parapodia relatively long and well developed; postsetal lobes elongate, much longer than broad; postsetal lobe truncate or at least broadly rounded 2
1. Parapodia poorly developed, short, broad; postsetal lobe much shorter; color in life light green *H. californiensis*
2. Postsetal lobe rounded; proboscis closely covered with elongate papillae; color in life red *H. borealis*, p. 244
2. Postsetal lobe truncate; proboscis sparsely covered with low papillae *H. simplex*, p. 243

Hemipodus simplex (Grube)

Plate 43, Figs. 116-119

Glycera simplex Grube, 1856, pp. 177-178.*Hemipodus simplex* Ehlers, 1901, pp. 155-156, pl. 18, figs. 11-15; Augener, 1923, p. 69; 1924, p. 439; 1927, p. 351.*Collections*.—366-35, 375-35, 846-38. 8 specimens.

Length to 90 mm; number of segments over 150; pale (preserved) and somewhat flaccid. Color in life not noted. Parapodial lobes are characteristically long, particularly in anterior segments (pl. 43, fig. 116). The presetal lamella is elongate, triangular throughout (pl. 43, figs. 116-118). Dorsal cirri are inserted low, near the dorsal base of the parapodia. Ventral cirri increase in relative length posteriorly, but do not surpass the truncate postsetal lamella.

These individuals resemble, in general appearance, color, and size, those of *H. californiensis* from southern California. Some of the latter, however, retain a greenish tint; also the everted proboscis of *H. simplex* is clavate, while that of *H. californiensis* is elongate, cylindrical. In *H. simplex* the parapodial ramus is long, the lobes slender; in *H. californiensis* the ramus is short, the lobes blunt, triangular.

The papillae of the proboscis are unique in the 3 species indicated in the key above. In *H. simplex* the papillae are sparse; each is short, triangular (pl. 43, fig. 119), cusplike, the point directed forward toward the distal end of the proboscis. In *H. californiensis* the papillae are elongate, oval (pl. 43, fig. 120), the narrowest end distally, but both ends smoothly rounded; they are circular in cross section. In *H. borealis* the papillae are bluntly conical, the base truncate (pl. 43, fig. 121), circular in cross section.

In the individuals of these species that have been examined, the jaws and accessory pieces do not differ sufficiently among themselves to render them useful in comparison. The aileron is a slender bar, somewhat broader where it is attached to the jaw, and the latter is a strongly falcate, clawlike structure.

Distribution.—Chile; Peru; New Zealand (Augener). Intertidal, to 8 fms.

Hemipodus borealis Johnson

Plate 43, Fig. 121

Hemipodia borealis Johnson, 1901, pp. 411-412, pl. 10, fig. 104; Moore, 1909, pp. 259-260; Treadwell, 1914, p. 198; Berkeley, 1927, p. 411.

Collections.—910-39, Mission Bay. 3 specimens.

The parapodia have an elongate, triangular presetal lobe, and a shorter, bluntly rounded, postsetal lobe, somewhat as in *H. simplex*, but less truncate. The proboscis is clavate when everted. The papillae of the proboscis are closely crowded, elongate, conical (pl. 43, fig. 121), approximately circular in cross section. They differ, therefore, from those described for *H. roseus* Quatrefages, in which they are small, foliaceous (Arwidsson, 1899, p. 29).

Distribution.—Northeast Pacific, from British Columbia south to San Diego, California. Intertidal.

Genus **GLYCERA** Savigny

KEY TO SPECIES

- | | |
|---|-------------------------------|
| 1. Branchiae present, retractile; parapodia with 2 presetal and 2 postsetal lobes | 2 |
| 1. Branchiae present, not retractile; parapodial lobes as above | 4 |
| 1. Branchiae absent; parapodia with 2 presetal and 1 or 2 postsetal lobes | 5 |
| 2. Branchial lobe simple, digitate; neuropodial postsetal lobe shorter than notopodial postsetal lobe | <i>G. rouxii</i> , p. 245 |
| 2. Branchial lobe much branched; the 2 postsetal lobes of approximately the same length | 3 |
| 3. Parapodia much deeper than long; postsetal lobes deep but notably shorter than the presetal lobe | <i>G. longissima</i> , p. 245 |
| 3. Parapodia as long as, or longer than, deep; postsetal lobes resemble presetal lobes | <i>G. americana</i> , p. 246 |

4. Branchiae are blisterlike, on the dorsal surface of the parapodia; parapodial bases elongate, exceeding in length the parapodial lobes *G. robusta*, p. 246
4. Branchiae are digitate, or lobular, inserted terminally; parapodial bases are moderately long to short 5
5. Branchial lobes present on dorsal and ventral sides of parapodia *G. dibranchiata*, p. 246
5. Branchial lobes present only on dorsal side of parapodia *G. convoluta*, p. 247
6. Parapodia with one postsetal lobe 7
6. Parapodia with 2 subequal postsetal lobes . *G. tessellata*, p. 247
7. Presetal lobes pointed, unequal; aileron with 2 teeth *G. papillosa*, p. 248
7. Presetal lobes broadly rounded, subequal; aileron with one tooth (plate 37, fig. 75) ?*G. oxycephala*, p. 248

Glycera rouxii Audouin and Edwards

Glycera rouxii Fauvel, 1923, p. 389, fig. 153 (synonymy); Okuda, 1938, pp. 124-125, fig. 1.

Collection.—889-38. One specimen.

Distribution.—Farallon Islands, California, in 37 fms; Japan; north Atlantic; Mediterranean.

Glycera longissima Arwidsson

Glycera longissima Arwidsson, 1899, pp. 23-24, figs. 15-19; Moore, 1911, pp. 304-305.

Glycera chilensis Arwidsson, 1899, pp. 24-25, figs. 20-21, 56.

Collection.—903-38. One specimen.

This clearly defined, robust species is known through few collections, each based on only a single individual. Arwidsson's two types were 250 and over 450 mm long; Moore's specimen measured 305 mm long, and the fragmentary specimen in the collection, though perhaps less than the anterior half, measures 130 mm long.

Distribution.—Patagonia; Chile; off San Nicolas Island; Anaheim Slough, southern California. Shore, to 32 fms.

Glycera americana Leidy

Glycera americana Leidy, 1855, pp. 147-148, pl. 11, figs. 49, 50; Ehlers, 1868, pp. 668-670, pl. 23, figs. 43-46; 1897, p. 81; 1901, pp. 152-153; Monro, 1933, p. 57 (synonymy).

Glycera rugosa Johnson, 1901, pp. 409-411, pl. 10, figs. 102-103; Hartman, 1938, p. 10 (synonymy).

Collections.—248-34, 280-34, 379-35, 380-35, 381-35, 492-36, 499-36, 632-37, 688-37, 740-37, 826-38, 833-38, 835-38, 843-38, 876-38, 886-38, 887-38, 889-38, 890-38, 891-38, 892-38, 897-38, 903-38, 905-38, 910-39, D-53, D-88, D-103. Numerous specimens.

Distribution.—Probably widely present through the eastern Pacific, from western Canada south to the Straits of Magellan, including the tropical Pacific. On the eastern coast of the Americas, it has been reported only from the New England states, south to South Carolina. New Zealand (Augener, 1927, p. 351). Intertidal, to 54 fms.

Glycera robusta Ehlers

Glycera robusta Ehlers, 1868, pp. 656-658, pl. 24, figs. 31, 32; Moore, 1903, p. 464; Izuka, 1912, pp. 248-249, pl. 23, fig. 10; Chamberlin, 1918, p. 177; 1919, p. 260; Berkeley, 1935, p. 770.

Collection.—Mission Bay, California. One specimen.

Distribution.—California; Japan. Intertidal, to 65 fms.

Glycera dibranchiata Ehlers

Glycera dibranchiata Ehlers, 1868, pp. 670-702, pl. 24, figs. 3-8, 10-28; Chamberlin, 1919, p. 350; Treadwell, 1928, p. 473.

Rhynchobolus dibranchiatus Webster, 1879, p. 245.

Euglycera dibranchiata Webster and Benedict, 1887, p. 723.

Collection.—Mission Bay, California. One specimen.

A single, complete individual, 150 mm long, agrees remarkably well with the original description by Ehlers (1868, p. 670). Its occurrence on the Pacific coast is of interest because it has not been reported heretofore outside of the eastern coast of North America. The single specimen was collected by R. L. Morrison from southern California, presumably Mission Bay. More complete data are lacking.

Distribution.—New England coast, south to Cape Hatteras; southern California. Intertidal, to 633 fms.

Glycera convoluta Keferstein

Glycera convoluta Ehlers, 1868, pp. 663-665, pl. 24, figs. 29, 30; Fauvel, 1923, pp. 383-385, fig. 150; Monro, 1930, p. 117.

Glycera alba Rathke *macrobranchia* Moore, 1911, pp. 301-302.

Glycera alba Treadwell, 1914, p. 198.

Glycera exigua Chamberlin, 1919, pp. 13-14.

Glycera macrobranchia Hartman, 1936, p. 32; 1938, p. 9.

Collections.—770-38, 903-38, Mission Bay. 11 specimens.

The prostomium consists of 14 annuli or more. Branchial lobes are first present from the twentieth parapodium (Mission Bay) to the twenty-fifth segment (903-38). Ehlers (1868, p. 664) noted them from the sixteenth parapodium in specimens from Naples, and Monro (1930, p. 117) reported them from the twelfth segment in collections off southwest Africa. Branchiae are continued posteriorly nearly to the end, but are absent from a few of the posteriormost segments.

These specimens differ from *G. alba* most notably in having longer branchial lobes; the accessory jaw piece is longer, the base more divergent. The proboscidal papillae are of two kinds, a much more numerous chitinous papilla, and a few, scattered tiny, rounded papillae.

Moore (1911, p. 301) separated *G. macrobranchia* from typical *G. alba* Müller because the branchiae of the former are notably larger. This is the case in *G. convoluta* Keferstein. The proboscidal papillae described by Moore seem to agree with those for *G. convoluta*.

Distribution.—North and south Atlantic; Mediterranean; southern California. Littoral.

Glycera tessellata Grube

Glycera tessellata Grube, 1863, pp. 41-42, pl. 4, fig. 4; Ehlers, 1868, pp. 654-656, pl. 24, figs. 2, 9, 33; McIntosh, 1885, p. 343, pl. 42, fig. 5; Moore, 1903, p. 464; 1908, p. 348; 1911, pp. 300-301; Fauvel, 1923, p. 387, fig. 152; Berkeley, 1927, p. 411; Fauvel, 1932, pp. 124-125.

Glycera abbranchiata Treadwell, 1902, pp. 200-201, fig. 49 (fide Augener, 1922, p. 205).

Collections.—132-34, 283-34, 285-34, 463-35, 530-36, 533-36, 549-36, 559-36, 561-36, 696-37, 704-37, 732-37, 733-37, 745-37, 863-38, 900-38, 914-38. Numerous specimens.

Distribution.—Eastern Pacific, from British Columbia south to Panama; Japan; Indo-Pacific; Atlantic; Mediterranean.

Glycera papillosa Grube

Glycera papillosa Grube, 1856, pp. 176-177; Ehlers, 1901, p. 154; Kinberg, 1910, p. 58, pl. 21, fig. 3; Augener, 1922, pp. 203-205, fig. 9.

Collection.—376-35. One specimen.

Length of a nearly complete individual is 20 mm for about 85 segments. The characters agree well with the redescription by Augener (1922, pp. 203-206) except that the proboscoidal papillae do not have a subterminal constriction. The dorsal cirri are inserted high above the parapodial bases.

Distribution.—Chile; Peru. In depths to 20 fms.

? *Glycera oxycephala* Ehlers

Plate 37, Figs. 74, 75; Plate 43, Figs. 122-124; Plate 44, Fig. 125

Glycera oxycephala Ehlers, 1887, pp. 121-123, pl. 41, figs. 7-11.

Collections.—786-38, 887-38, 889-38, 914-39. 10 specimens.

Length of 115 segments is about 70 mm. Segments are biannulate, the parapodial ring the longer; anterior segments have a faintly marked third ring. The prostomium is a long smooth cone, or faint annulations are visible at the sides. The terminal antennae include 2 shorter and 2 longer, the latter about twice as long as the former (pl. 43, fig. 124).

The proboscis (everted) is more or less closely covered with elongate papillae of one kind (pl. 43, fig. 122). The terminal jaws are stout, black, strongly falcate (pl. 37, fig. 74). The accessory piece differs from that in *G. capitata* in that the basal piece is longer than broad, and the secondary tooth is absent (pl. 37, fig. 75).

Parapodia have 2 presetal and 1 postsetal lobe. The presetal lobes in the anterior region are long, bluntly rounded distally, the dorsal extending distally as far as the ventral (pl. 43, fig. 123). More posteriorly the dorsal lobe is progressively smaller, but even in posterior parapodia (eighty-fifth) the 2 lobes still surpass the postsetal lobe (pl. 44, fig. 125). Dorsal cirri are inserted low, near the dorsal base of the parapodia.

Ehlers (1887, p. 121) described *G. oxycephala* from collections made by the Blake Expeditions. The locality was given as doubtful. Ehlers was able to attribute only 2 prostomial antennae to it, saying, however, that the other 2 might have become lost. In the specimens herein reported, the 4 antennae are of unequal sizes (pl. 43, fig. 124), but clearly visible.

These specimens differ from Ehlers' description in that (1) the prostomium has 4 antennae instead of 2, (2) the aileron differs from that in

G. capitata, with which Ehlers compared that of *G. oxycephala*. The parapodial lobes, however, are strikingly similar to those shown by Ehlers. For these reasons, the specimens are questionably referred to *G. oxycephala*.

Distribution.—Indefatigable Island, Galapagos, in 392 fms; off California, in 36-40 fms.

Family **Goniadidae**

KEY TO GENERA

- Proboscis without V-shaped pieces at sides, near base GLYCINDE, p. 249
- Proboscis with a series of V-shaped pieces at the sides, near base GONIADA, p. 251

Genus **GLYCINDE** F. Müller

Glycinde multidentis F. Müller

Plate 44, Figs. 126-131

Glycinde multidentis F. Müller, 1858, p. 214, pl. 6, figs. 4-6; Grube, 1870, pp. 67-68; Augener, 1918, pp. 399-402, pl. 3, fig. 75, pl. 6, fig. 196, fig. 50.

?*Glycinde armigera* Moore, 1911, pp. 307-311, pl. 21, figs. 160-171; Berkeley, 1927, p. 411.

?*Glycinde pacifica* Monro, 1928, pp. 83-85, figs. 5-8; 1936, fig. 144.

Collections.—116-33, 173-34, 477-35, 890-38, 893-38, 909-39, Mission Bay. 7 specimens.

A 9 mm fragment (116-33) consists of 45 segments. Its proboscis, partly everted, is dorsally covered with many rows of teeth, resembling the radula of a mollusk. These include, on each side, 4 in a row dorsally, the innermost curved inward, the outer less curved, with a distal articulating appendage (pl. 44, figs. 126, 127), 2 rows of tiny papillar cones laterally (pl. 44, fig. 129), and smaller hooks ventrally, resembling those in the outer dorsal rows, but much smaller. Prostomial annulations are obscure; there are 4 black eye spots, a pair on the basal ring, another pair subdistally.

Dorsal setae are simple, acicular, with a tapering, pointed hood (pl. 44, fig. 131). Ventral setae are composite, the articulation heterogomph (pl. 44, fig. 130). Notopodia are first present from the thirtieth segment. The dorsum is traversed by broad, brown segmental bands.

A specimen from Mission Bay, California, is 43 mm long for 112 segments; a posterior end is lacking. The color is pale reddish brown, with a broad, darker band crossing each segment dorsally and ventrally. The parapodial lobes are similarly pigmented, the segmental grooves pale. Notopodia are present from the thirtieth segment.

Collections from 890-38 and 893-38 include each, a single individual, with 25 mm for 120 segments, or less. In the former the prostomium has 9 annulations, as described for *G. pacifica* Monro (1928, p. 83). Each has notopodia from the thirtieth segment. Collection 913-39 includes an individual 31 mm long with 77 anterior segments. The prostomium is obscurely 8 or 9 ringed, on which 2 pairs of eyes are distinguishable. Notopodia are present from the thirtieth segment. Collection 909-39 has a single pale specimen, 28 mm long for 97 segments, a short posterior piece lacking. The prostomium is somewhat macerated, but has annulations on its proximal half. Prostomial eyes are clearly visible. Notopodia are present from the thirtieth segment. Collection 173-34 has an individual 13 mm long for 98 segments. The prostomium has 9 annulations and 2 pairs of eyes. Notopodia are present from the thirtieth segment. A tabulation of some of these characteristics follows.

Station number	Number of segments	Length	Prostomial annulation	Eyes	Notopodial occurrence	Pigmentation
116-33	45+	9 mm	none	present	from 30th	pale brown
173-34	98+	13 mm	9 annuli	present	from 30th	pale brown
890-38	120+	25 mm	9 annuli	present	from 30th	pale brown
893-38			none	present	from 30th	pale brown
909-39	97+	28 mm	9 annuli	present	from 30th	pale brown
913-39	77+	31 mm	8 or 9 (obscure)	present	from 30th	
915-39	144+	66 mm	9 annuli	obscure	from 30th	dark brown
Mission Bay	122+	43 mm	obscure	obscure	from 30th	opaque brown

Glycinde armigera Moore (1911, p. 307) is nearly related, if not identical with *G. multidentis*. The conspicuous obcordate condition of the presetal lobes, described by Moore, is more or less obviously present in individuals in the collections mentioned above. In other respects, it agrees reasonably with *G. multidentis*. Monro (1936, p. 144) has indicated the possibility of the identity of *G. pacifica* with *G. multidentis*. In the former, however, the notopodia are first present from parapodia 20 to 25. *Glycinde picta* Berkeley (1927, p. 412) from western Canada is a nearly re-

lated form. In it, however, the notopodia are first present from segments 26 to 28.

Distribution.—Brazil; Panama; eastern Pacific, from Monterey Bay, California, south to Costa Rica; Galapagos Islands. In depths to 90 fms. Moore reported *G. armigera* from California, in depths of 36 to 271 fms.

Genus GONIADA Audouin and Edwards

KEY TO SPECIES

1. Notopodia provided with blunt, acicularlike setae; notopodial setae first present after the sixtieth segment; the distal, free end of the proboscis has a series of 17 dorsal and 13 ventral smaller chitinous pieces *G. acicula*, p. 252
1. Notopodia provided with setae terminating in a slender point; notopodial setae first present anterior to the sixtieth segment; the distal end of the proboscis with fewer small plates 2
2. Notopodia first present after the fiftieth segment; chevrons with 9 V-shaped pieces on a side; the distal end of the proboscis with 3 ventral and 4 greatly reduced dorsal teeth, in addition to the larger lateral plates *G. maculata*, p. 251
2. Notopodia first present from the thirty-eighth segment; chevrons with about 16 pieces on a side; the distal end of the proboscis with 3 ventral and 9 dorsal pieces, in addition to the lateral plates *G. uncinigera*, p. 252

Goniada maculata Oersted

Goniada maculata Oersted, 1843, pp. 33-34, figs. 16, 23, 91, 95, 97, 98; Ehlers, 1868, pp. 704-718, pl. 24, figs. 36-48; Arwidsson, 1899, pp. 36-38, figs. 25-28, 60, 61; Fauvel, 1923, pp. 392-393, fig. 154.

Collections.—887-38, 889-38. 4 specimens.

Length to 57 mm, a posterior piece lacking. Notopodial lobes are first present from the fifty-first segment, but from the fifty-sixth segment the notopodia are abruptly larger and setae are present. The prostomial antennae are distinctly biarticulated, the distal article tiny, papillar, less than one fourth as long as the basal article.

The proboscis terminates in 18 soft papillae. The larger, lateral teeth (macrognaths) are black, with 5 claws, decreasing in size from dorsal to ventral ends. The smaller plates (micrognaths) number 3 ventrally; these do not nearly fill the space between the macrognaths. There are 4

greatly reduced dorsal micrognaths widely separated from one another. The lateral chevron has 9 V-shaped pieces on a side.

G. maculata heretofore has not been reported from the Pacific. *G. brunnea* Treadwell is recorded by Moore (1911, p. 306) from Monterey Bay, from about the same depth as *G. maculata*. Both species have few to no micrognaths in the dorsal arc. In *G. maculata*, however, the ventral micrognaths number only 3, in *G. brunnea* they are said to be 9.

Distribution.—Atlantic; off central California, in 36-37 fms.

Goniada uncinigera Ehlers

Goniada uncinigera Ehlers, 1901, pp. 159-161, pl. 21, figs. 1-8.

Collections.—903-38. 5 specimens.

Length to 20 mm; number of segments over 100. One of the specimens has the proboscis partly everted. It is covered with large, spinose papillae in which the main spine is directed posteriorly (Ehlers, 1901, pl. 21, fig. 7). The V-shaped pieces include 16 on a side (13, according to Ehlers), those most proximal being the smallest. The micrognaths include 3 pieces ventrally and 9 dorsally. The prostomium has 7 annuli, the distal ring slenderest but longest.

Notopodia are first present from the thirty-eighth segment (Ehlers reported it from the thirty-ninth). Notopodial setae taper distally to fine points.

In so far as I am aware, this is the first record of *G. uncinigera* since it was first described, from southern Chile.

Distribution.—Southern Chile, in 5-6 fms; Anaheim Slough, southern California, intertidal.

Goniada acicula, new species

Plate 44, Figs. 132-141

Collections.—8-33, 499-36, 549-36 (Holotype). 3 specimens.

Length of 148 segments is 75 mm (posteriorly incomplete). Body with 3 regions: (1) an anterior part of about 63 segments with uniramous, smaller parapodia, (2) a median region of about 28 segments, the parapodia biramous but not noticeably larger than those in the anterior region, and (3) a posterior region from about segment 93, in which the parapodia are abruptly larger, the rami well separated and both well developed.

The prostomium region consists of 10 annuli and a distal cone provided with 4 terminal, biarticulated antennae. These have a cylindrical

basal portion, that is about four times as long as wide, and a distal, slender, papillar style.

The proboscis (protruded) is long, cylindrical, widest distally. It has a series of chevrons on either side, near the base, consisting of 10 to 12 pieces in a set (pl. 44, figs. 138, 139). There are 17 soft, terminal papillae. Macrognaths are black, with 5 claws, decreasing in size from dorsal to ventral ends, the dorsalmost about 6 times as long as the ventralmost. Micrognaths include 17 in the dorsal arc and 13 in the ventral. They form a continuous series, but vary somewhat in size. Some of the larger are accompanied, on their outer side, by an accessory smaller piece similar to the larger, and functioning, perhaps, to replace the older when lost. Each of the micrognaths has 2 terminal points and 2 embedded teeth. Proboscoidal papillae are of one kind, distally truncate (pl. 44, fig. 135), but in lateral view are seen to be directed away from the terminal jaw pieces (pl. 44, fig. 134).

Parapodia in the anterior region have well-developed lobes and cirri, the ventral cirrus exceeding the other lobes in size (pl. 44, fig. 132). From about the sixty-fourth parapodium, the notopodium is present as a slender, digitate lobe, and within it are embedded 2 dark, acicular setae. The dorsal and ventral rami are not separated; hence this region is apt to remain unobserved. Parapodia of the median region have notopodia consisting of an upwardly directed, postacicular and a preacicular lobe (pl. 44, fig. 137). The ventral cirrus continues large, long, surpassing the other parapodial lobes. Parapodia of the posterior region have the rami well separated. The postacicular neuropodial lobe is broadly rounded, somewhat obcordate (pl. 44, figs. 133, 136), surpassed by the slender, bifurcated presetal lobe (pl. 44, fig. 136). Neuropodial setae are numerous, disposed in fan-shaped fascicles, the articulation heterogomph (pl. 44, fig. 141). Notopodia consist of 2 subequal lobes, provided with a few (3 to 5) stout, acicular setae with blunt, slightly bent tip (pl. 44, fig. 140). Their surface is smooth, not granular or serrated. They are about as thick as the supporting acicula. Setae and acicula are pale amber in color, the composite setae nearly colorless.

Goniada acicula has the stout acicular notopodial setae characteristic of some other species. From *G. grahami* Benham (1932, p. 561) from New Zealand, it differs in that the notopodial acicula are amber colored, not black; the stout notopodial setae are distally curved, not straight. From *G. teres* Treadwell (1931, p. 19) from Jamaica, it differs in that

the proboscis is provided terminally with paragnaths and the parapodial change is considerably beyond the fifty-seventh segment.

G. acicula approaches *G. tripartita* Monro (1931, p. 19) from the Great Barrier Reefs in having a median region with smaller, biramous parapodia, but differs from the latter in that its parapodial lobes are differently shaped; the proboscis has 10 to 12 pieces in the chevron instead of 8 pieces; the large, stout jaw pieces at the distal end of the proboscis have 5 teeth instead of 3. *G. japonica* Izuka (1912, p. 232) from Japan has ventral cirri that are proportionately much smaller; also, the acicular notopodial setae are straight, not curved, the transitional region from anterior to posterior, including only 2 segments.

Holotype.—AHF no. 25.

Distribution.—Gulf of California; La Libertad, Ecuador. In depths to 40 fms. The single specimen from Ecuador was taken at night with an electric light. It appears to be a sexually mature male, but its setae are like those of the dredged specimens.

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PLATE 31

Figures 1-4, *Eurythoë complanata*: Fig. 1, anterior end in dorsal view of a smaller specimen, consisting of about 70 segments (498-36), for comparison with that shown in fig. 5, x 31; Fig. 2, serrated notopodial seta from a posterior (about 60th) parapodium, x 645; Fig. 3, elongated neuropodial seta from the same parapodium, x 645; Fig. 4, a shorter neuropodial seta from the same parapodium, x 645.

Figures 5-9, *Pareurythoë californica*: Fig. 5, anterior end in dorsal view from a specimen that consists of about 75 segments (902-38) for comparison with that shown in fig. 1, x 31; Fig. 6, a long neuropodial seta from a posterior (about 63rd) parapodium, x 645; Fig. 7, a hastate, neuropodial seta from the same parapodium, x 645; Fig. 8, a shorter neuropodial seta from the same parapodium, x 645; Fig. 9, a serrated notopodial seta from the same parapodium, x 645.

Figures 10-13, *Chloeia pinnata*: Fig. 10, prostomium and caruncle in dorsal view (915-39), x 18; Fig. 11, anal cirri, in dorsal view, the stippling indicates pigment, x 31; Fig. 12, notopodial seta, x 127; Fig. 13, tip of the same seta, enlarged, x 285.

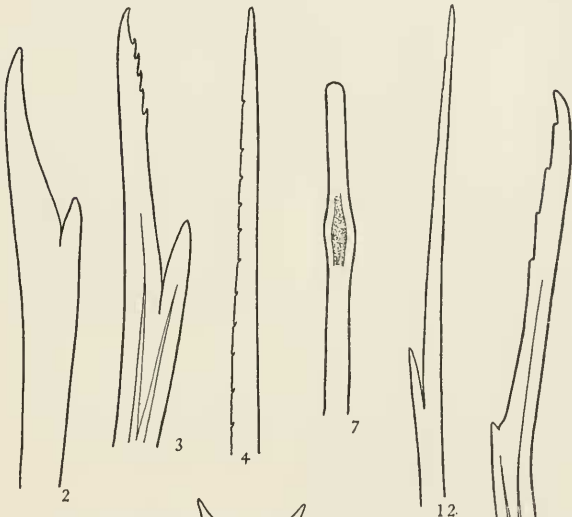
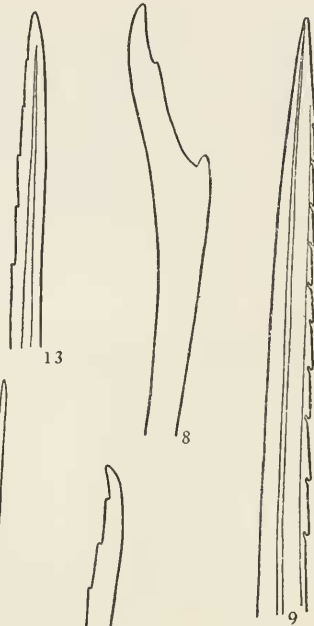
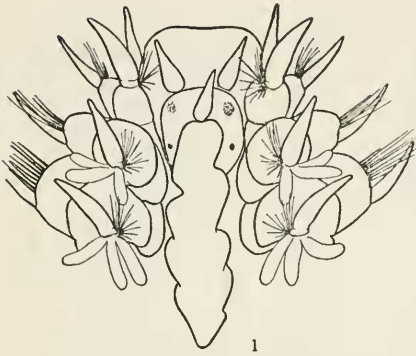


PLATE 32

Figures 14-20, *Chloeia entypa*: Fig. 14, anterior end in dorsal view (213-34), x 24; Fig. 15, a dorsal serrated notopodial seta without tip, from the 8th last segment, x 65; Fig. 16, a portion of the same from the serrated region, x 285; Fig. 17, distal end of a neuropodial seta from the same segment, of which about 100 or more are present, all resembling one another, x 285; Fig. 18, one of smooth notopodial setae from the 4th parapodium, x 65; Fig. 19, a serrated notopodial seta from 10th parapodium of a young individual (876-38), x 127; Fig. 20, tip of a notopodial seta from a median parapodium, x 285.

Figures 21-23, *Euphrosyne bicirrata*: Fig. 21, smooth notopodial seta from a median parapodium (559-36), x 285; Fig. 22, serrated notopodial seta from same parapodium, in lateral view, x 285; Fig. 23, same, in frontal view, x 285.

Figures 24-26, *Euphrosyne panamica*: Fig. 24, branchial tuft from the 16th parapodium (446-35), x 65; Fig. 25, prostomium and caruncle in dorsal view, x 27; Fig. 26, a serrated notopodial seta from the 16th parapodium, x 285.

Figures 27-29, *Euphrosyne aurantiaca*: Fig. 27, a bifurcated notopodial seta, x 285; Fig. 28, a serrated notopodial seta, x 285; Fig. 29, a long, neuropodial seta (439-35), x 580.

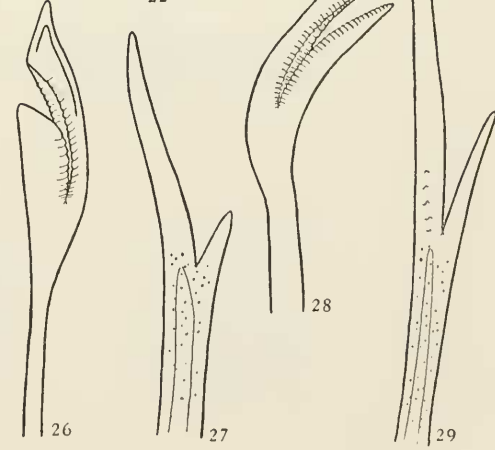
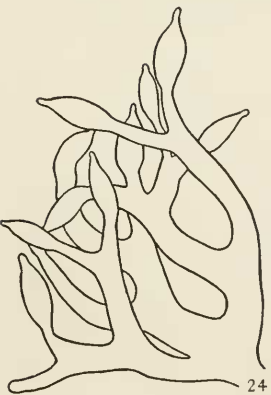
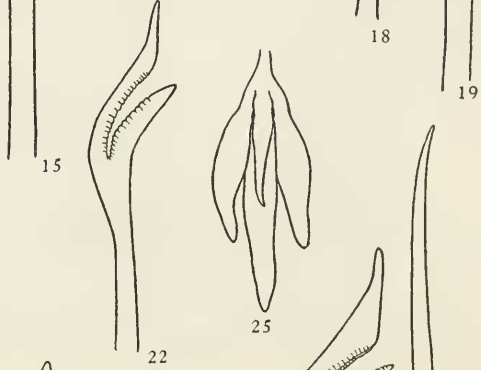
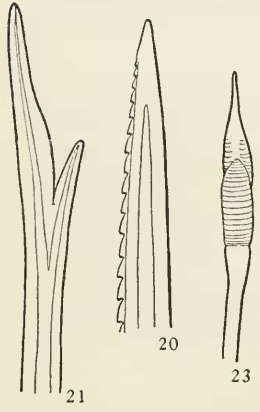
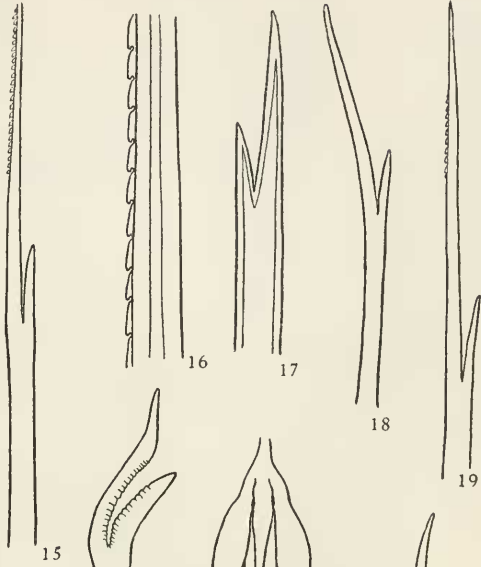
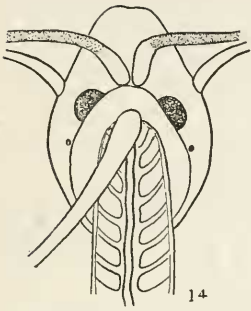


PLATE 33

Figures 30-31, *Hesione intertexta*: Fig. 30, 10th parapodium from left side, with acicular lobes at dorsal edge of neuropodium (310-35), x 31; Fig. 31, distal end of neuropodial seta from 10th parapodium, x 285.

Figures 32-35, *Leocrates chinensis*: Fig. 32, prostomium from specimen with proboscis retracted, the median antenna broken off, frontal process and palpi extended forward (633-37), x 18; Fig. 33, anterior end of a specimen with proboscis partly everted, the frontal process and palpi directed ventrally (305-34), x 18; Fig. 34, distal end of ventralmost seta from the 10th parapodium, the protecting hood still attached, x 285; Fig. 35, distal end of superiormost neuropodial seta from the same parapodium, x 285.

Figure 36, *Nereis neonigripes* (901-38): seventh last parapodium, setae omitted, the dorsal cirrus turned unnaturally to the right, x 65.

Figure 37, *Nereis riisei* (633-37): parapodium from about the 60th segment, setae indicated, x 65.

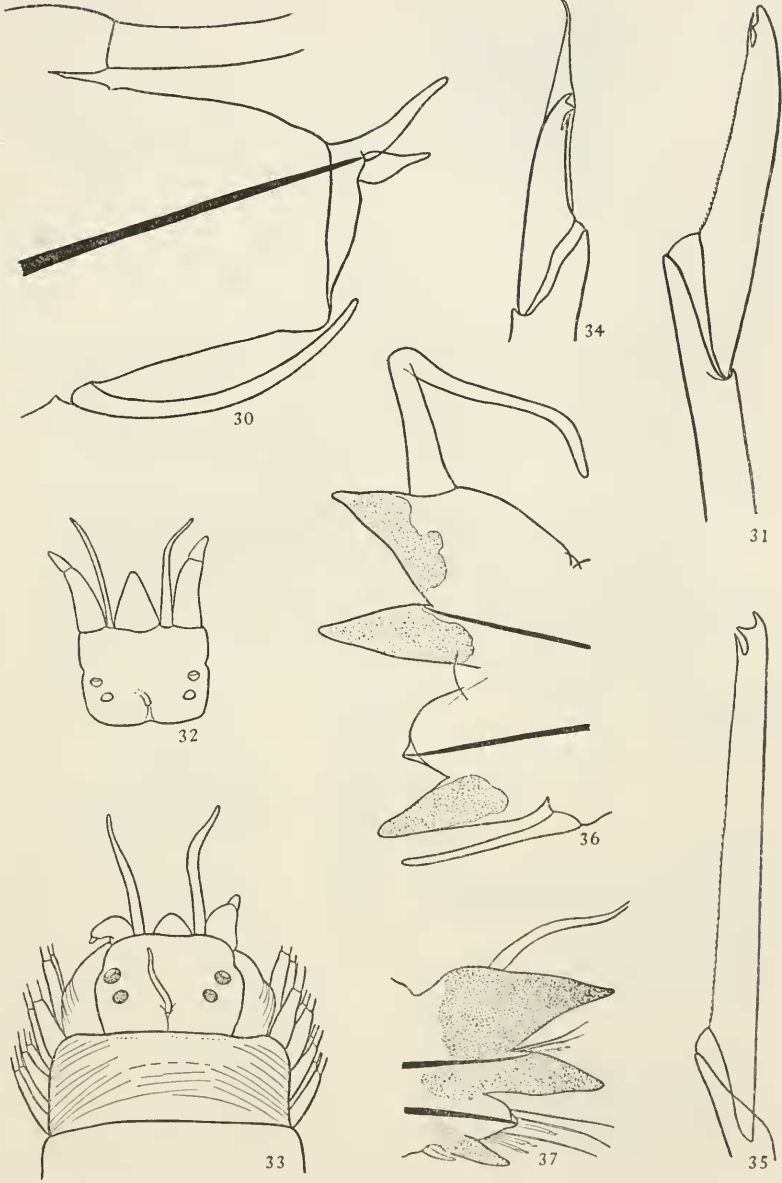


PLATE 34

Figures 38-41, *Stauronereis cerasina*: Fig. 38, 67th parapodium, or about the 5th last, setae indicated, x 65; Fig. 39, 20th parapodium, setae indicated, x 65; Fig. 40, a subacicular composite neuropodial seta from the 20th parapodium, x 645; Fig. 41, a supraacicular, simple neuropodial seta from the same parapodium, x 645.

Figures 42-46, *Leptonereis glauca moniloceras*: Fig. 42, 57th parapodium, or 10th last, from the postepitokal region, x 65; Fig. 43, anterior end in dorsal view (728-38), x 31; Fig. 44, neuropodial seta from a posterior parapodium (814-38), x 645; Fig. 45, 16th parapodium from a female epitokal individual, x 65; Fig. 46, epitokal parapodium from the 40th segment, the atokal setae still present, x 65.

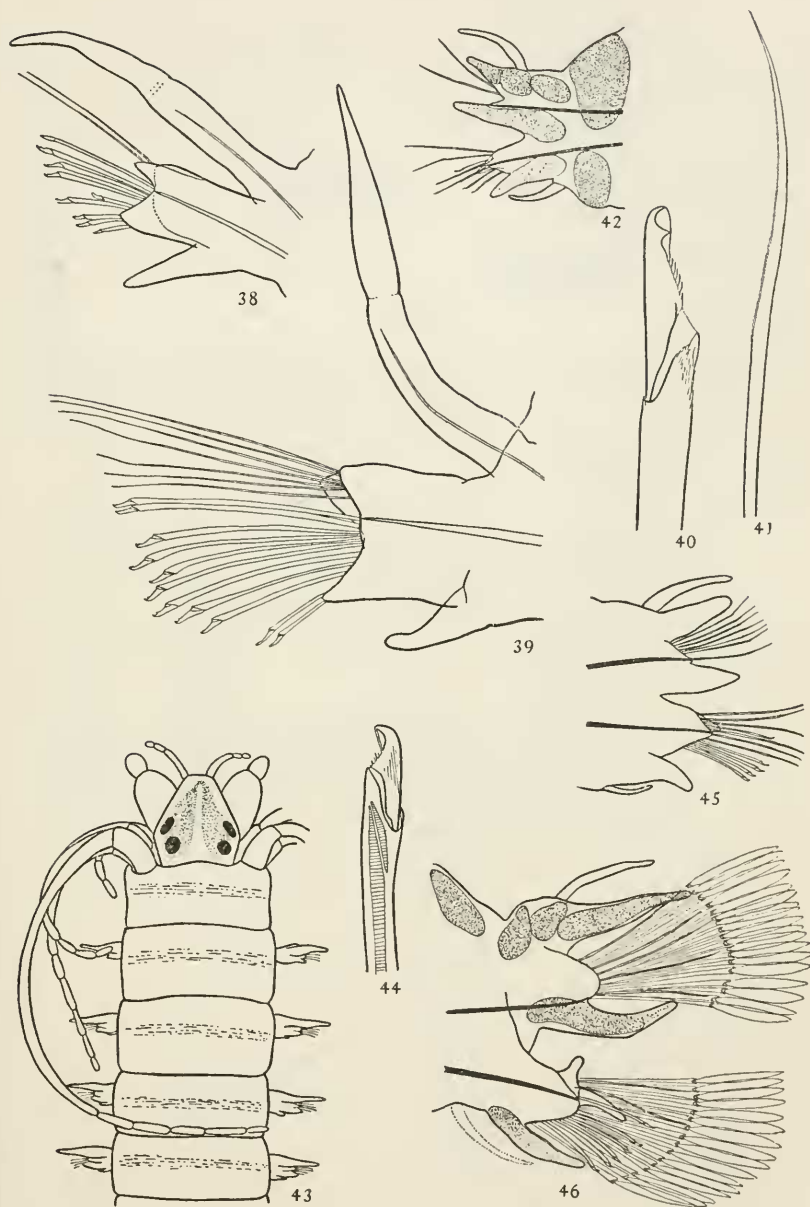


PLATE 35

Figure 47, *Ceratonereis tentaculata* (639-37): falcigerous notopodial seta, with slightly heterogomph articulation, x 285.

Figure 48, *Ceratonereis costae* (13-33): postepitokal parapodium, setae omitted, x 65.

Figures 49-51, *Nereis flavipes*: Fig. 49, homogomph notopodial seta from a posterior parapodium, x 645; Fig. 50, heterogomph falcigerous neuropodial seta from the same parapodium, x 645; Fig. 51, a posterior parapodium, setae indicated, x 65.

Figure 52, *Nereis pelagica* (900-38): a posterior parapodium, setae indicated, x 65.

Figures 53-56, *Nereis latescens*: Fig. 53, 70th parapodium, or 10th last, x 65; Fig. 54, a heterogomph falcigerous neuropodial seta from the 70th parapodium, x 645; Fig. 55, a homogomph falcigerous notopodial seta from the same parapodium, x 645; Fig. 56, 31st parapodium, setae omitted, x 65.

Figure 57, *Nereis mediator*: a posterior parapodium, setae indicated, x 65.

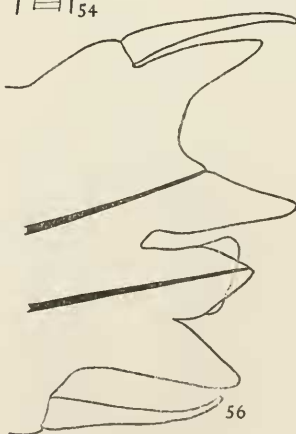
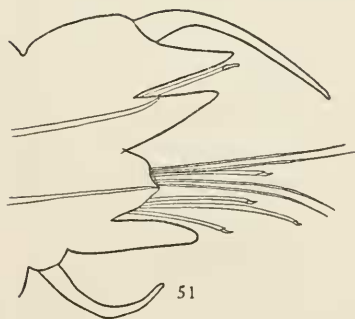
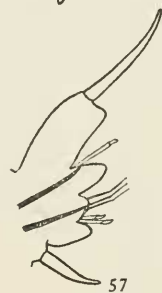
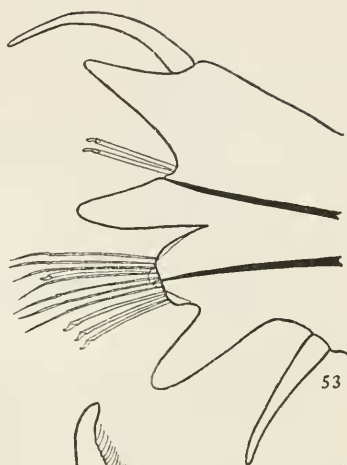
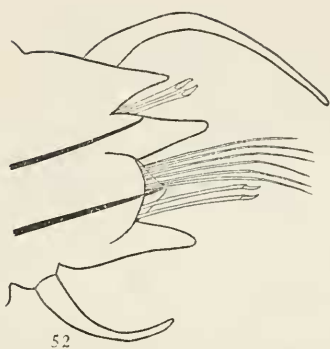


PLATE 36

Figures 58-62, *Nereis paucignatha*: Fig. 58, a falcigerous notopodial seta from the 31st parapodium, x 645; Fig. 59, anterior end in dorsal view of a male epitokous individual, the peristomial cirri from the left side omitted (21-33), x 24; Fig. 60, 31st parapodium from same individual, setae indicated, x 65; Fig. 61, a median epitokal parapodium from the same individual, setae omitted, x 65; Fig. 62, a falcigerous neuropodial seta from the same parapodium, x 645.

Figures 63-64, *Nereis pseudonereis*: Fig. 63, 56th parapodium, setae indicated, x 31; Fig. 64, anterior end in dorsal view, stippling indicates pigment, x 12.

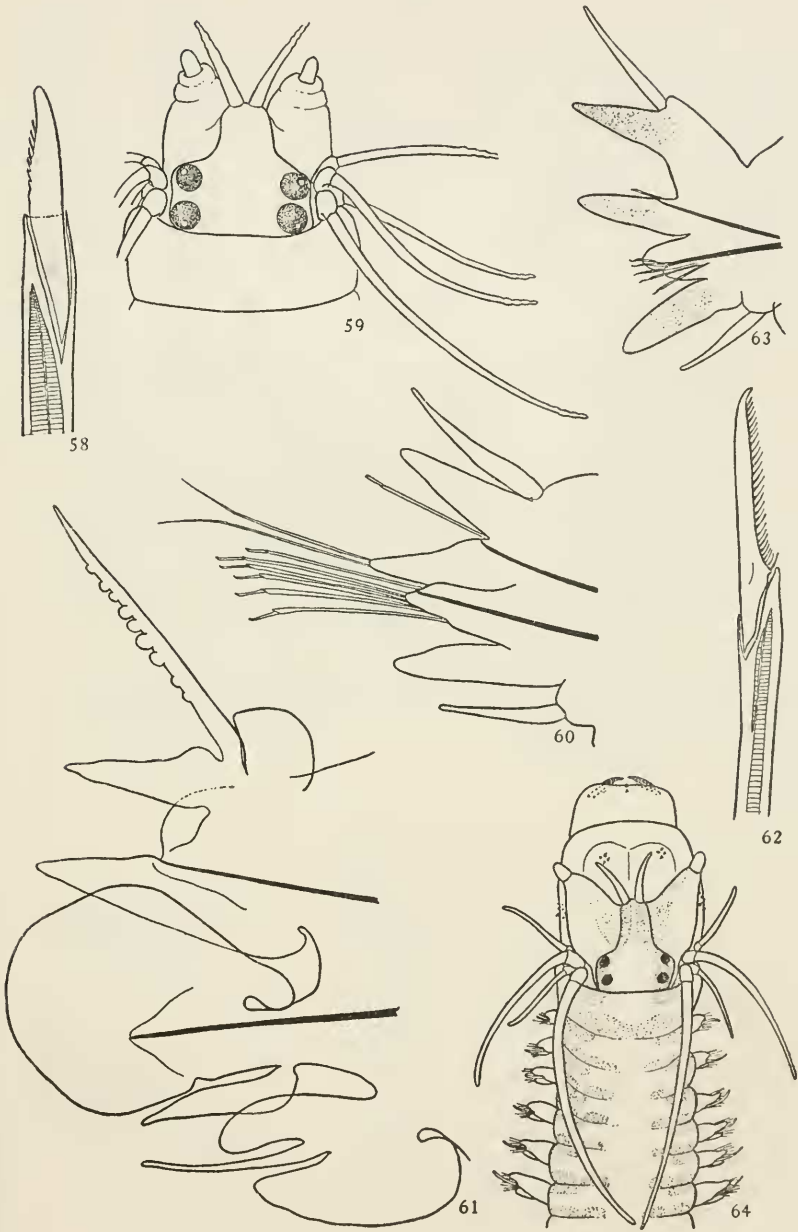


PLATE 37

Figures 65-66, *Nereis pseudonereis*: Fig. 65, falcigerous notopodial seta from the 56th parapodium, x 645; Fig. 66, falcigerous neuropodial seta from the same parapodium, x 645.

Figures 67-73, *Nereis veleronis*: Fig. 67, anterior end in dorsal view, proboscis everted, x 12; Fig. 68, 25th parapodium, setae indicated, x 31; Fig. 69, 10th last parapodium, setae omitted, x 31; Fig. 70, 38th parapodium, setae indicated, x 65; Fig. 71, a median epitokous parapodium (384-35), x 31; Fig. 72, a falcigerous neuropodial seta from the 25th parapodium, x 645; Fig. 73, a falcigerous notopodial seta from the same parapodium, x 645.

Figures 74-75, ?*Glycera oxycephala*: Fig. 74, jaw piece (889-38), x 65; Fig. 75, accessory jaw piece or aileron, depressed under cover slip, x 65.

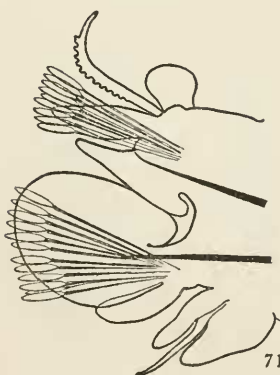
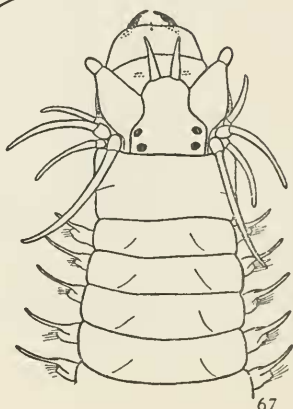
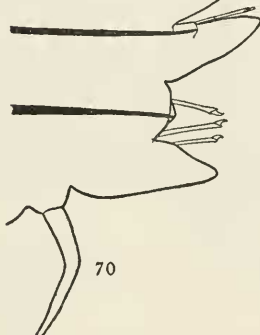
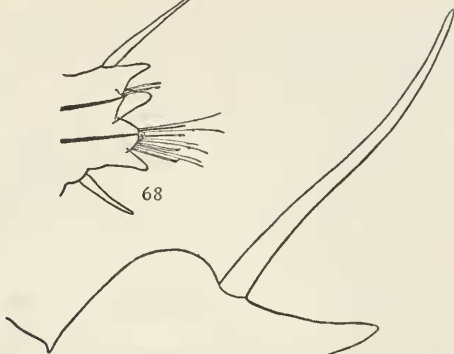


PLATE 38

Figures 76-83, *Platynereis polyscalma*: Fig. 76, anterior end in dorsal view of an atokous individual (495-36), x 31; Fig. 77, a 45th parapodium in anterior view, setae indicated, x 65; Fig. 78, a 60th parapodium, in anterior view, x 65; Fig. 79, median parapodium from a nereilepas stage of male, with normal setae, x 65; Fig. 80, 15th parapodium from right side, from same individual as shown in fig. 85, x 65; Fig. 81, falcigerous notopodial seta from an epitokous male (11-33), x 645; Fig. 82, falcigerous neuropodial seta from 45th parapodium of an atokous individual, x 645; Fig. 83, falcigerous notopodial seta from same parapodium, x 645.

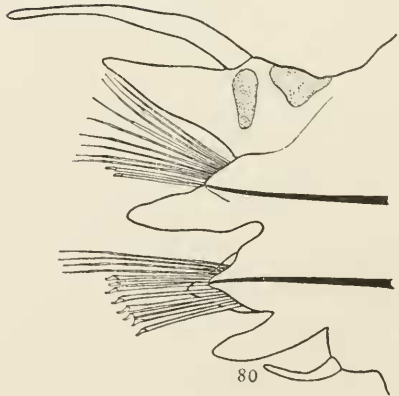
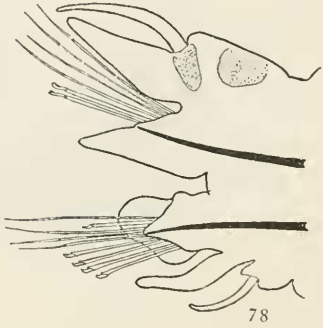
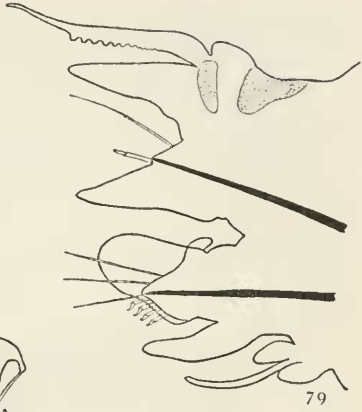
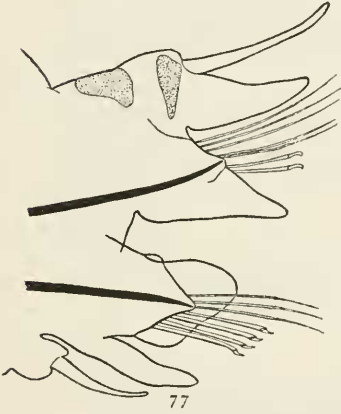
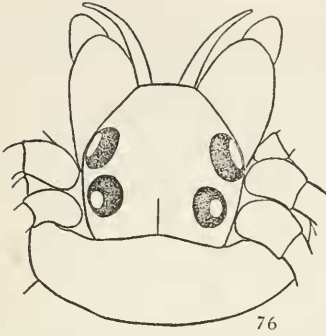


PLATE 39

Figures 84-86, *Nephtys inermis*: Fig. 84, 50th parapodium, setae omitted (633-37), x 31; Fig. 85, 20th parapodium from same individual, x 31; Fig. 86, a posterior parapodium from same individual, x 31.

Figures 87-88, *Nephtys assimilis*: Fig. 87, a posterior parapodium in anterior view, setae omitted (495-36), x 31; Fig. 88, 10th parapodium in anterior view, showing digitate lobe at dorsal edge of neuropodium, x 65.

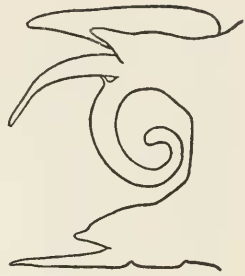
Figures 89-90, *Nephtys macroura peruana*: Fig. 89, 10th parapodium in anterior view, with attenuated acicular lobes, which are increasingly smaller after the 23rd parapodium, x 31; Fig. 90, 38th parapodium in posterior view, x 31.



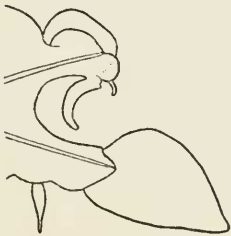
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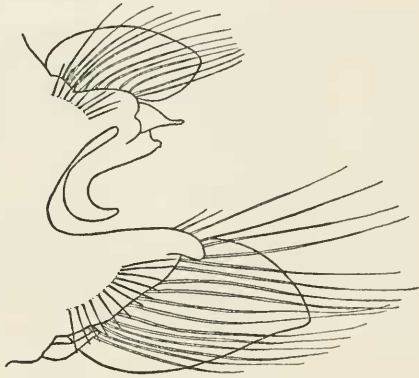
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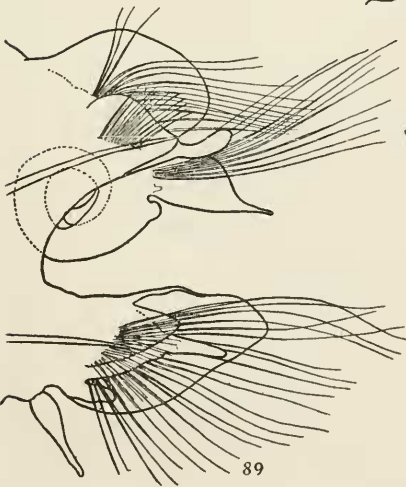
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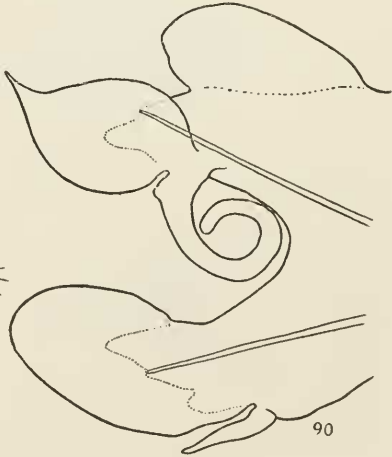
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PLATE 40

Figures 91-94, *Nephtys lobophora*: Fig. 91, 45th parapodium in posterior view (832-38), x 18; Fig. 92, basal part of a postlamellar, long seta, x 285; Fig. 93, 12th parapodium in anterior view, setae indicated, x 18; Fig. 94, a posterior parapodium in posterior view, setae indicated, x 18.

Figure 95, *Nephtys inermis*: lyre seta from a posterior parapodium, x 285.

Figure 96-97, *Nephtys macroura peruana*: Fig. 96, part of a spinose seta, x 285; Fig. 97, part of a barred seta from the same parapodium, x 285.



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PLATE 41

Figures 98-99, *Nephtys squamosa*: Fig. 98, 25th parapodium in anterior view (735-37), x 31; Fig. 99, notopodium from the same, in posterior view, x 31.

Figures 100-104, *Nephtys magellanica*: Fig. 100, anterior end in dorsal view (628-37), x 31; Fig. 101, portion of barred seta from the 45th parapodium, x 285; Fig. 102, a shorter, postlamellar seta from the 25th parapodium, x 285; Fig. 103, distal part of a long postlamellar seta from the 45th parapodium, x 285; Fig. 104, basal part of same seta, x 285.

Figure 105, *Nephtys panamensis*: anterior end in dorsal view, pigmented pattern indicated by stippling (499-36), x 31.

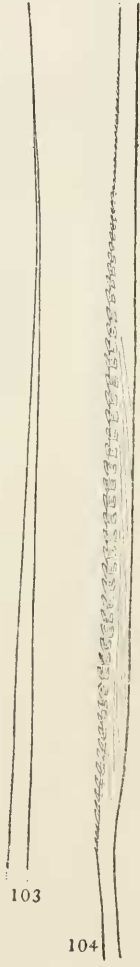
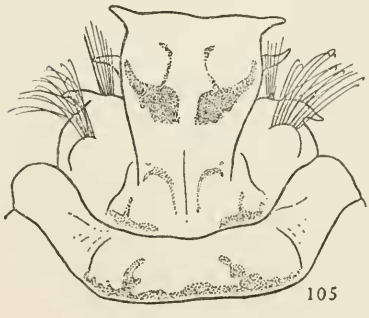
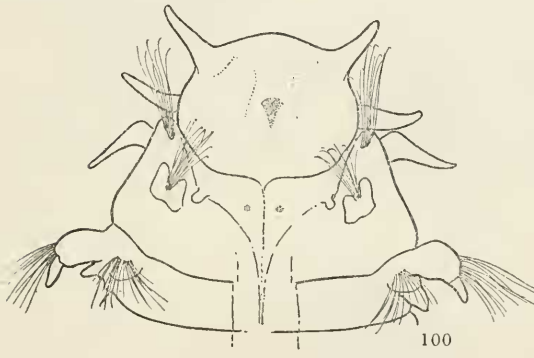
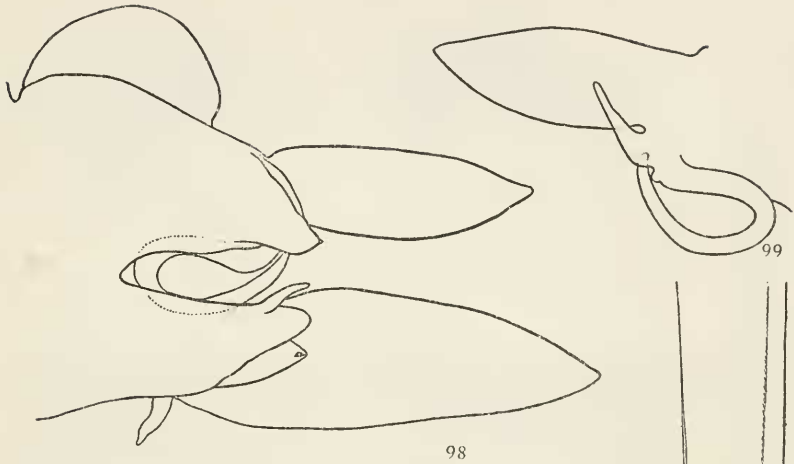
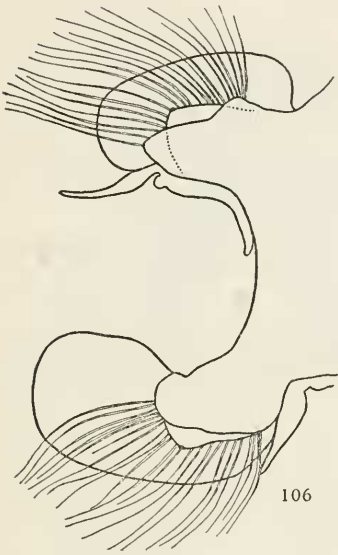


PLATE 42

Figures 106-109, *Nephtys panamensis*: Fig. 106, 50th parapodium in anterior view, postacicular setae indicated, x 31; Fig. 107, 25th parapodium in anterior view, x 31; Fig. 108, 10th parapodium in anterior view, x 31; Fig. 109, part of a postacicular serrated seta from the same parapodium, x 285.

Figures 110-114, *Nephtys caecoides ferruginea*: Fig. 110, 20th parapodium in anterior view, setae omitted, x 31; Fig. 111, 10th notopodium in anterior view, x 31; Fig. 112, about 50th parapodium in anterior view, setae omitted, x 31; Fig. 113, part of a spinose seta from postacicular fascicle, x 127; Fig. 114, part of a barred seta from the same parapodium, x 127.



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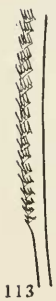
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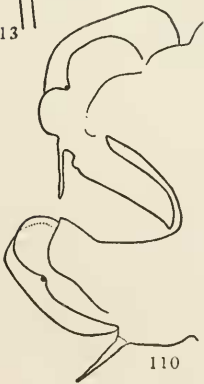
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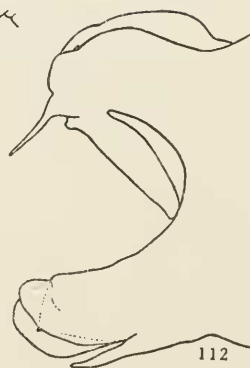
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PLATE 43

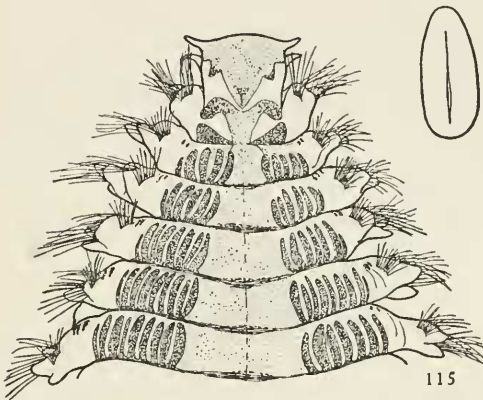
Figure 115, *Nephtys caecoides ferruginea*: anterior end in dorsal view, pigmented pattern indicated by stippling (379-35), x 18.

Figures 116-119, *Hemipodus simplex*: Fig. 116, 10th parapodium (366-35), x 65; Fig. 117, 60th parapodium from the same individual, x 65; Fig. 118, 13th last parapodium from the same individual, x 65; Fig. 119, 3 papillae from the proboscis, the cusps directed toward the terminal jaws, x 285.

Figure 120, *Hemipodus californiensis*: 2 papillae from the proboscis, x 285.

Figure 121, *Hemipodus borealis*: 2 papillae from the proboscis, x 285.

Figures 122-124, ?*Glycera oxycephala*: Fig. 122, 2 papillae from the proboscis, x 285; Fig. 123, 10th parapodium in anterior view, setae indicated, x 65; Fig. 124, distal end of prostomium from left side, with 2 longer and 2 shorter terminal antennae, x 65.



120

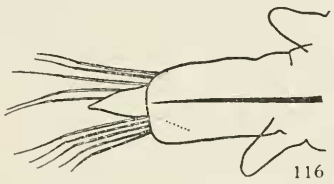


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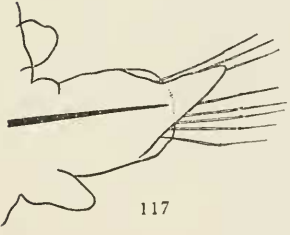
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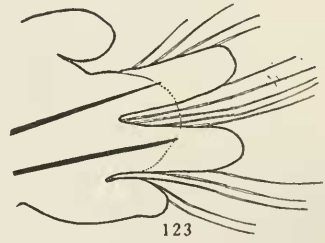
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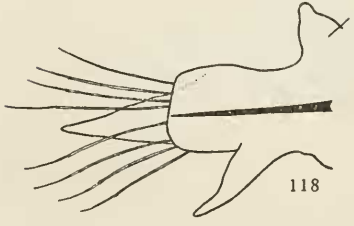
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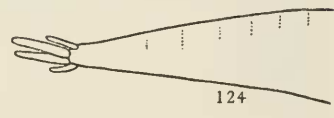
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PLATE 44

Figure 125, ?*Glycera oxycephala*: 85th parapodium in anterior view, setae omitted, x 65.

Figures 126-131, *Glycinde multidentis*: Fig. 126, 5 proboscicial macrognaths from the dorsal side of an everted proboscis, the piece at the right directed toward the median dorsal line, the one at the left near the lateral side, x 127; Fig. 127, 4th macrognath from the right, shown above, x 285; Fig. 128, 2nd macrognath from the right, shown in Fig. 135, x 285; Fig. 129, micrognath from the ventrolateral part of the proboscis, x 285; Fig. 130, articulation of a neuropodial seta from a posterior parapodium, x 645; Fig. 131, tip of a notopodial seta from a posterior parapodium, x 645.

Figures 132-141, *Goniada acicula*: Fig. 132, parapodium from the middle anterior region, setae omitted, x 31; Fig. 133, parapodium from the middle posterior region, in posterior view, setae indicated, x 31; Fig. 134, papillae from proboscis taken from near the middorsal line near the distal third, the points directed toward the head (proboscis everted), x 65; Fig. 135, one of the proboscicial papillae in frontal view, x 285; Fig. 136, a neuropodium from the middle posterior region in anterior view, setae omitted, x 31; Fig. 137, a parapodium from the middle region, or about the 83rd parapodium, in anterior view, x 31; Fig. 138, chitinous plates (chevron) from the right side of a proboscis (499-36), x 65; Fig. 139, same, from another specimen (549-36), x 65; Fig. 140, distal end of a notopodial seta from a posterior parapodium, x 285; Fig. 141, articulation of a composite seta from the same parapodium, x 285.

